International Journal of Innovative Research in Engineering & Multidisciplinary Physical Sciences

Multidisciplinary • Peer Reviewed • Online
Open Access • Widely Indexed • Bi-monthly International Journal • Since 2013

VOLUME 8
ISSUE 4

July-August 2020

ijirmps.org
editor@ijirmps.org
+91 87 585 383 22

E-ISSN 2349-7300
9 772349 730016

Vejalpur, Ahmedabad - 380051, Gujarat, India.

The **International Journal of Innovative Research in Engineering & Multidisciplinary Physical Sciences** (**IJIRMPS**) is a **multidisciplinary, bi-monthly, online, peer reviewed, widely indexed, openly accessible international journal** and helping researches to share their research information **since 2013**.

Our aim is to explore advances in research pertaining to applied, theoretical and experimental technological studies. The goal is to promote scientific information interchange between researchers, developers, engineers, students and practitioners working all around the world. We provide an opportunity for practitioners and educators of all fields to exchange research evidence, models of best practice and innovative ideas.

Research Areas

As a multidisciplinary journal, we are accepting Research work from all branches of **Engineering**, all branches of **Ph.D.**, all fields of **Medical & Pharmacy**, all branches of **Business Administration (MBA)**, all disciplines of **Physical Sciences** and all streams of **Computer Applications (MCA)**.

Here is the wider list of all the disciplines:

- Engineering
- Medical / Pharmacy
- Business Administration
- Physical Science
- Computer Applications
- Arts
  - Drawing
  - Fashion
  - Movies / Music / TV
- Biology
  - Agriculture / Botany
  - Bio + Chemistry
  - Genetics / Molecular
  - Geology
  - Medical / Physiology
  - Zoology
- Chemistry
  - Petroleum
  - Pharmacy
- Computer
  - Artificial Intelligence / Simulation / Virtual Reality
  - Automation / Robotics
  - Data / Information
  - Design
  - Electronics
  - Logic
  - Network / Security
- Mathematics
  - Economy / Commerce
  - Logic
  - Maths + Physics
  - Statistics
- Sociology
  - Administration / Law / Management
  - Archaeology / History
  - Banking / Finance
  - Data / Information / Statistics
  - Economics
  - Education
  - Geology
  - Health
  - Home Science
  - Intelligence / Security
  - Journalism / Media
  - Linguistic / Literature
  - Philosophy / Psychology / Religion
  - Politics
  - Sports
  - Tourism / Transport
- Physics
  - Astronomy
  - Civil Engineering
  - Electric
  - Energy
  - Mechanical Engineering
  - Nano Technology / Nuclear

INDEX

Change in Lifestyle pattern, behavior and Perception about Lockdown Amid COVID-19 Pandemic, India

Lockdown and its Effect, India

[1]Kirti, [2]Debarghya Mandal

[1]Research Fellow, [2]Data Analytics Consultant
[1]Department of Biostatistics and Demography,
[1]International Institute for Population Sciences, Mumbai, India
[2]Sterlite, EdIndia, Mumbai, India

***Abstract*: *Background*: Since December 2019, the world has started to suffer an outbreak of Coronavirus disease (COVID-19). Many people associated with community medicines affirmed that lockdown could help in abating the spread. However, this lockdown has changed our daily life habits. This proposed study will strive to observe this unprecedented changes. *Aim*: To assess the change in behavior or lifestyle among different segments and to understand different opinions and their association with social and psychological changes. *Methodology*: This study is based on a primary data that has been collected by circulating an online. Questions regarding the lifestyle pattern and behavioral change during the lockdown, perception and awareness about the pandemic has been asked. Tableau and MS-Excel has been used to analyze and present the results in an effective way. *Results and Conclusions*: Lockdown has its great effects on Internet Usage, workout routine, sleeping pattern, food intake and other lifestyle patterns. The level of awareness is different due to different exposures. Most people were supporting lockdown to stave off COVID-19 even at the cost of their daily bread. The social media can be seen as an integral part of this radical change. People are desperately striving to cope with the 'new normal'.**

***Index Terms*: COVID-19; pandemic; lockdown; social distancing; lifestyle pattern; behavior; new normal; India**

I. INTRODUCTION

The entire world is absolutely grappled with the pandemic of COVID-19 right now and an unprecedented bewilderment have engulfed our globe. The researchers have been trying to invent remedial measures; but all in vain. However, the virologists, the epidemiologists and the doctors associated with community medicines affirmed that lockdown could be one of the most effective tools to stave off the pandemic to some extent as, Social distancing can abate the infection undoubtedly. Since December 2019, the world has started to suffer an outbreak of Coronavirus disease (COVID-19). COVID-19 is an infectious disease caused by a newly discovered coronavirus (World Health Organization).

The disease spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes (World Health Organization). In order to prevent this inevitable disease from spreading the whole world's human population has been under a locked down. As a result, each and every individual in the world is facing some or the other problem as its consequences. The lockdown was activated on from the 24th of March 2020 and till date the whole country is in captivity literally. Needless to say that this lockdown has changed our habitual daily life radically and has crippled us socially, environmentally and psychologically. This proposed study will strive to observe this unprecedented changes with an eagle eye.

Some studies that has been published have reported the symptoms of the disease and its causes also the forecast of the spread of COVID-19 (Paital et. al., 2020, Roy Shovonlal, 2020, Zhang et. al., 2020). A paper which talks about the impact of lockdown, contact and non-contact transmissions on infection dynamics which is primarily based on the epidemiology of the disease and shows that the two different routes of transmission one is the traditional person-to-person contact route and the other one is formites-mediated and airborne route. The latter one is supposed to affect the spread if remain uncertain. Henceforth, premature withdrawal of lockdown is likely to promote a rapid and sharper increase in the number of new cases than the capacity of national; health-care services (Roy Shovonlal, 2020).

However, few studies have tried to ascertain the immediate impact of the lockdown amid COVID-19 pandemic on individual's mental health, lifestyle habits and their behavior. A study that has been done in Hubei Province of China among adults has shown that there are some positive impacts of the pandemic as the place has been under a locked down and people were paying more attention to their mental health, spending more time relaxing, resting and exercising (Zhang et. al., 2020). It has been observed that social lockdown has also drastic impacts on the environment especially on reduction of NO2 and CO2 emission. Therefore, the stringent social distancing via lockdown is highly important to control COVID-19 and also to contribute for self-regeneration of nature (Paital et. al., 2020). Sentiment analysis has shown that there is some negativity, fear, disgust, and sadness about the lockdown among the Indian population but the positive sentiments stood out (Barkur et. al., 2020). Only lockdown without mass testing is only postponing the surges, as transmission rate is getting reduced. If cases remained undetected then the transmission will resume (Chandrashekhar, 2020).

In Today's world where people likes to mingle with their family and friends, it becomes difficult for them being under a social lockdown and follow social distancing, where one cannot get out of the house until necessary. Present study majorly focusses on the awareness, perception about the COVID-19 outbreak, and to ascertain the immediate impact of the lockdown on change in individual's lifestyle habits and behavior during the lockdown amid COVID-19 pandemic in India.

II. DATA AND METHODS

Data has been collected by circulating an online form through social media. People were asked to fill in the form by answering various questions regarding the lifestyle pattern and behavioral change during the ongoing lockdown, their perception and basic awareness about the COVID-19 pandemic etc. Anonymity of the responses has been maintained throughout the study. Respondents were asked about their age and profession for insightful information. Preliminary data points have been collected, asking if they are living with their family or not, if people are facing problem in getting the daily essentials, if people abide by the rules and regulations of lockdown enforced by the government and is able to cope with the prevailing situation in the country. Awareness about the situation, and few questions on how their lifestyle habits and pattern is being changing during the lockdown. There were in total eighteen questions in order to get the insights about the same among the population. Total of 530 sample points were collected from almost all the states of India between 14th of April till 24th of April. Almost all the regions have been covered, with most of the respondents from West Bengal and rest from other parts of the nation.

For analysis purpose various charts has been deployed to get the maximum and useful insights. Charts like bar graph, stacked bar graph, pie chart, donut chart has been used. Tableau and Microsoft Excel has been used to do the visualization and data cleaning respectively. Bar graph is a chart that uses bars and makes it easy to compare categories visually, where 100 percent stacked bar chart can be used to show the relative percentages of multiple data series in stacked manner. However, pie charts have been used to compare the contribution of each value to a total. Whereas, doughnut charts can be used when we want to show more than one dimension.

III. RESULT AND DISCUSSION

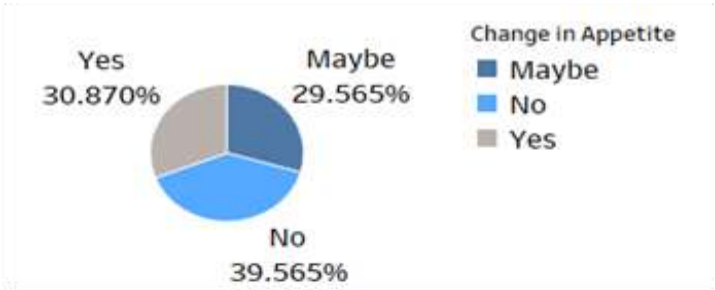


Figure 1.1: Overall Change in Appetite

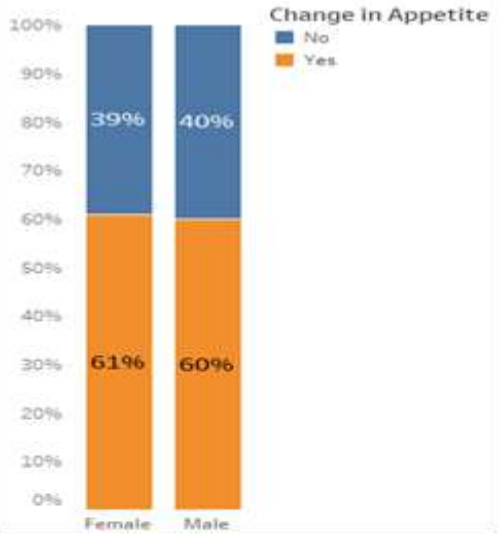


Figure 1.2: Change in Appetite by Gender

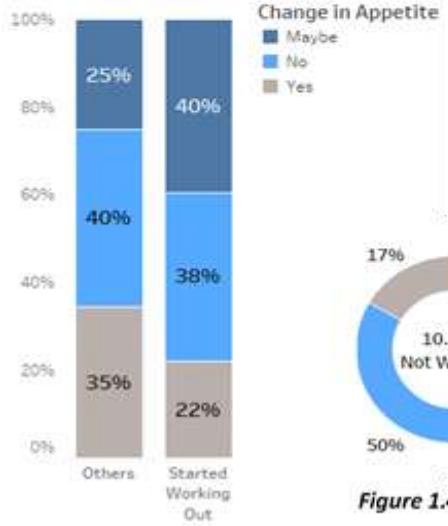


Figure 1.3: Change in Appetite Among those who has Started Working Out

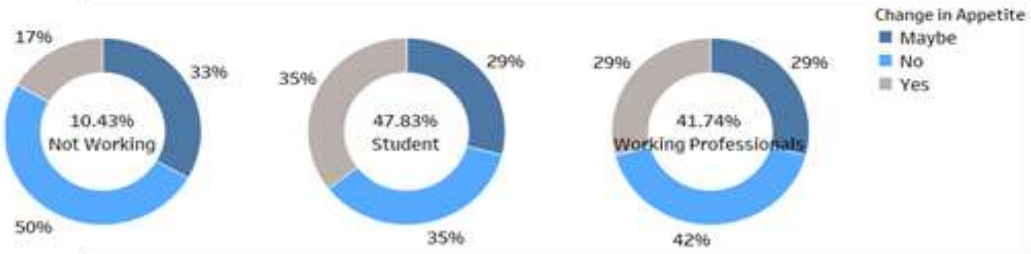


Figure 1.4: Change in Appetite by Profession

From "**Figure 1.1**", approximately, 61 percent of the respondents have witnessed change in appetite during the lockdown. Also, those who has reported "May be" as their response were considered along with those who has reported "Yes" as they have experienced some amount of change in their appetite. "**Figure 1.2**" shows that pattern of change in Appetite is almost the same for both the gender. Most of the members be it male or female with approximately 60 percent each has experienced a change in Appetite.

"**Figure 1.3**" depicts that among those who have started working out during the lockdown has approximately 62 percent of those who have experienced a change in appetite whereas among others there are approximately 60 percent people who have experienced a change in Appetite during the lockdown. From "**Figure 1.4**", we can see that the irrespective of the working status most of the respondents have witnessed a change in their appetite. However, Students and Working Professionals has shown a significantly greater proportion of people with change in appetite as compared to those who are Not Working.

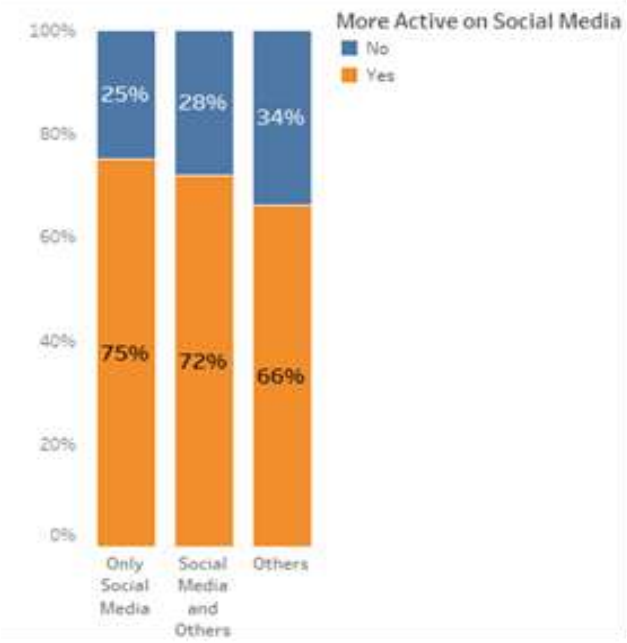


Figure 2: Social Media Use and if it has Increased

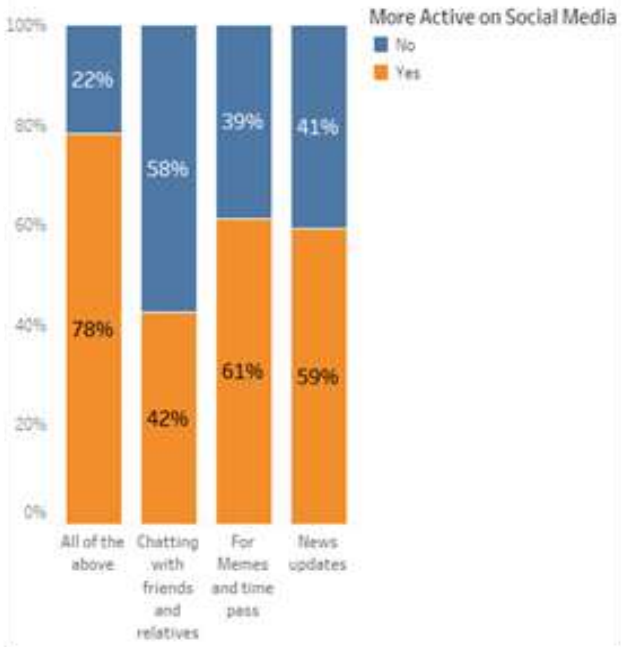


Figure 3: More active on Social Media and Purpose

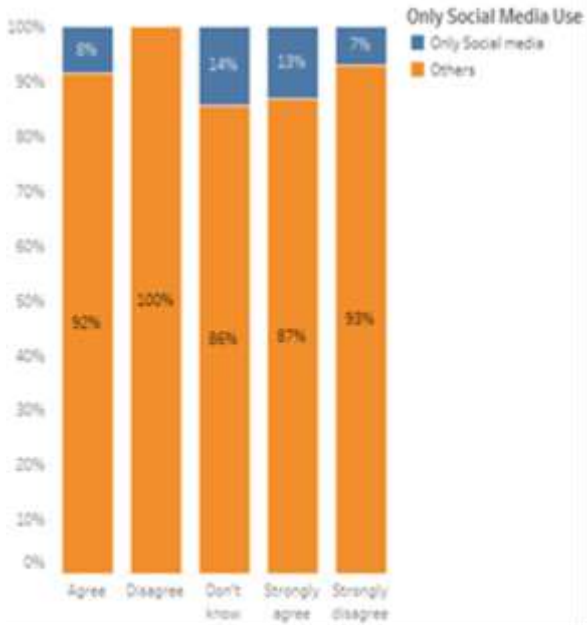


Figure 4: Only Social Media Use of News Updates and if the Nationwide Activities Are Helping in Boosting Moral

"**Figure 2**" depicts that those people who use Only Social media for COVID-19 statistics and news updates, a significant proportion of them are now more active on Social Media. Figures also shows that, most of the people are more active on Social Media during the Lockdown than before. From the "**Figure 3**", we can see that a big chunk of the sample i.e. 78 percent of the respondents are using Social Media for almost all the purposes like, chatting with Friends and Family Members, for Memes and Time pass and News Updates. Also, we can see that most of the people are who are now more active on Social Media use it only for the purpose of Memes and Time pass with 61 percent, which is even greater than those who are using it for News Updates.

From "**Figure 4**", we can see that, 100 percent people who use only Social Media for News updates has shown 'Disagreement' with the statement that 'the Nationwide activities such as clapping as expression of solidarity with those combating the COVID-19

Pandemic, lighting diyas/candles/mobile torch etc. is actually helping in boosting moral'. Also, 93 percent of the respondents who only use Social Media for the News Updates 'Strongly Disagree' with the statement.

Which shows, that Social Media plays a vital role in molding or helping people in making their opinion about whatever is happening around them.

From "**Figure 5.1**", we can see that 64 percent of the respondents has reported that there are no positive cases nearby, 20 percent has responded "Yes" up till 24th of April i.e., the last survey date. Still there were 16 percent of the respondents who were unaware and has reported "Don't Know", rest with 84 percent of the respondents were aware of the situation in their locality.

"**Figure 5.2**" shows that, overall, most of the people agree or strongly agree with the statement that the Nationwide activities are helping in boosting moral with approximately 53 percent of the respondents and total of 31 percent are those who Disagree or Strongly Disagree with the statement. From "**Figure 5.3**", we can see that irrespective of the State a significant proportion of people have noticed a positive environmental change with approximately 68 percent in West Bengal and 71 percent in Others states. Whereas, 18 percent of the respondents have not witnessed any change in environment in West Bengal and only 10 percent in Other States. "**Figure 5.4**" depicts that approximately, 70 percent of the respondents has experienced a positive environmental change in their respective areas. From "**Figure 5.5**" we can see that, 50 percent of the respondents are not facing any problem in accessing grocery items, 19 percent people are saying that they are facing problem in getting the grocery items. Whereas, 31 percent are saying that in near future if the satiation does not get settled then there might be a problem in accessing grocery items.

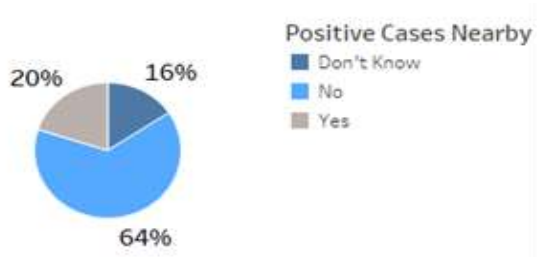


Figure 5.1: People Having Positive Cases Nearby

Figure 5.2: Opinion if Nationwide Activities Helping in Boosting Moral

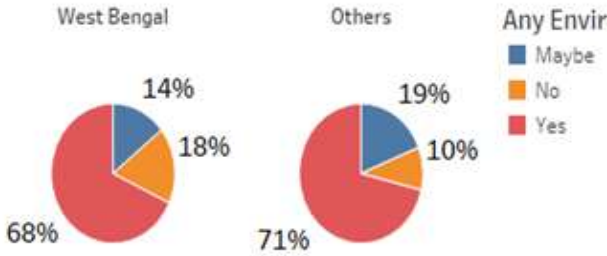


Figure 5.3: Environmental Change by West Bengal and Others

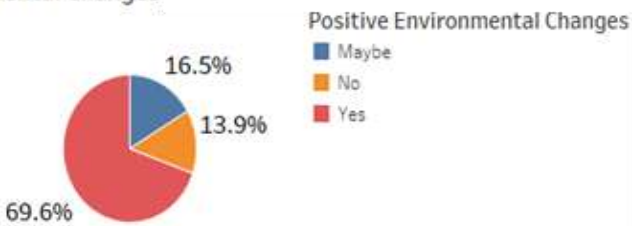


Figure 5.4: If there is any Positive environment change

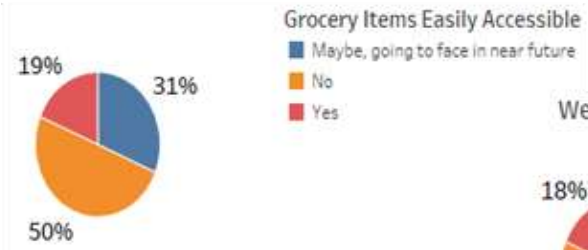


Figure 5.5: Easy Accessibility of Grocery Items

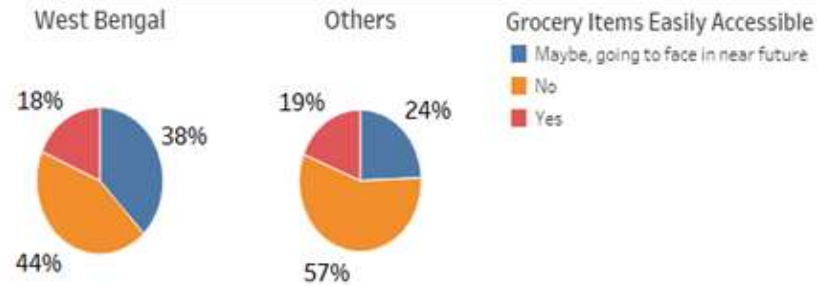


Figure 5.6: Grocery Item Accessibility across West Bengal and Others

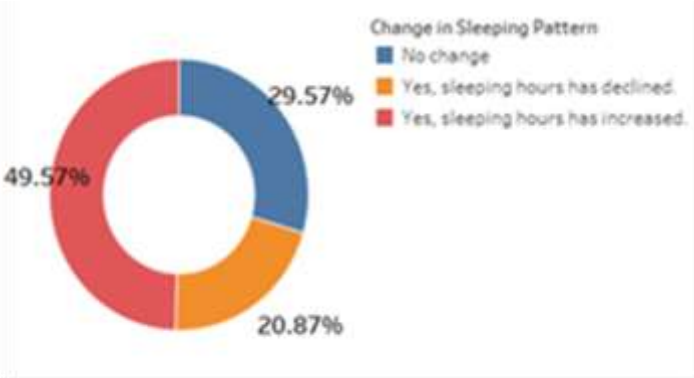


Figure 6: Change in Sleeping Pattern During the Lockdown

From "**Figure 6**" we can see that, almost half of the respondents have experienced an increase in sleeping hours during the lockdown as compared to pre lockdown sleeping hours. From the above "**Figure 7**", we can see that most of the respondents have experienced an increase in the sleeping hours irrespective of the profession during the lockdown as compared to the sleeping hours pre lockdown. Among students an increased sleeping hours can be seen which is the highest amongst all with 56 percent. Those who are working professionals, most of them have experienced an increase in the sleeping hours. Whereas, for those who are not working 50 percent of them is having the same sleeping pattern as pre lockdown hence, there is no change in sleeping pattern.

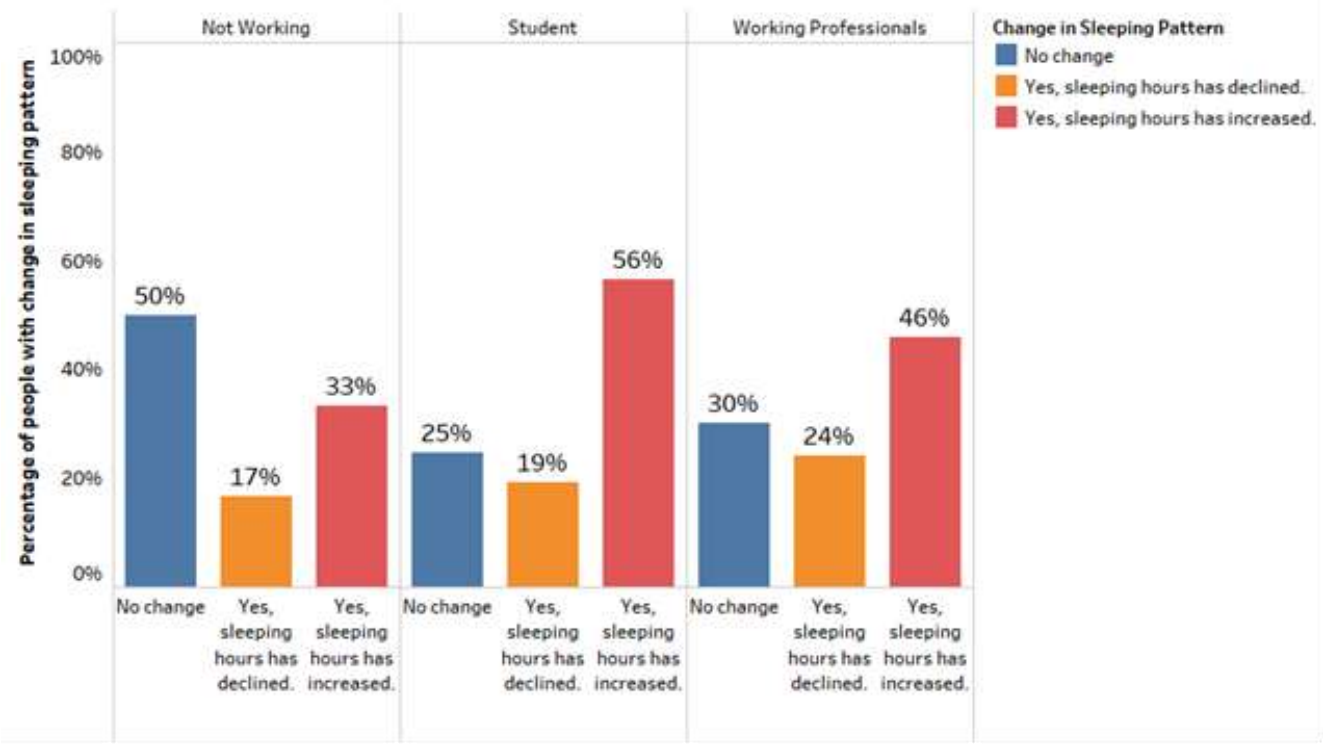


Figure 7: Sleeping Pattern by Profession

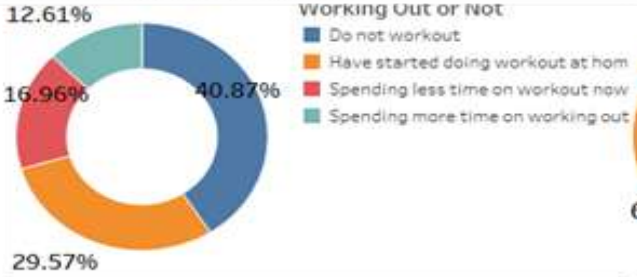


Figure 8.1: Working Out During the Lockdown

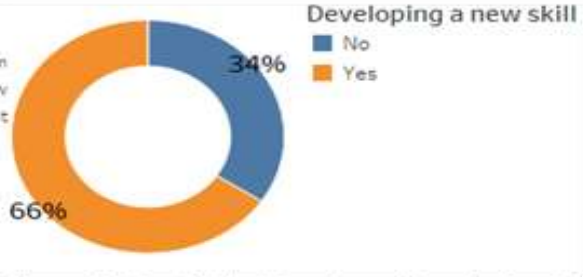


Figure 8.2: People Who Have Started Developing a New Skill/s

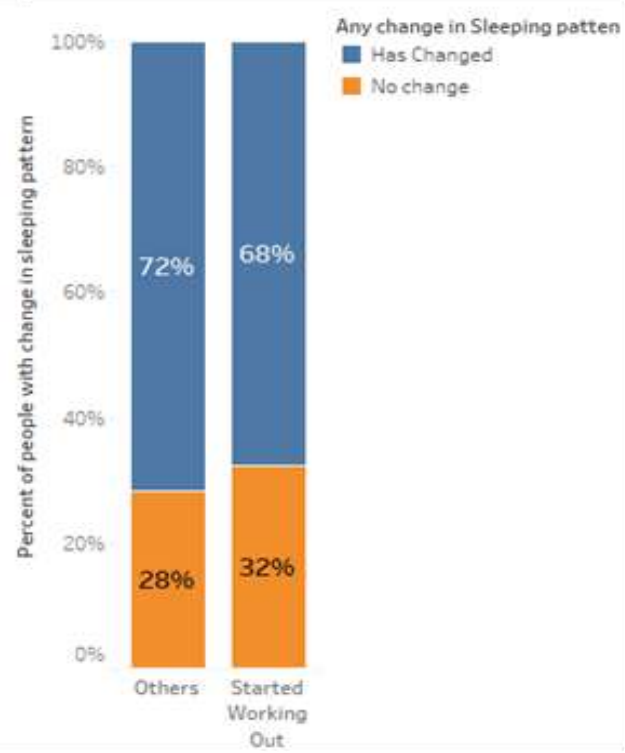


Figure 8.3: Started Working Out and Change in Sleep Pattern

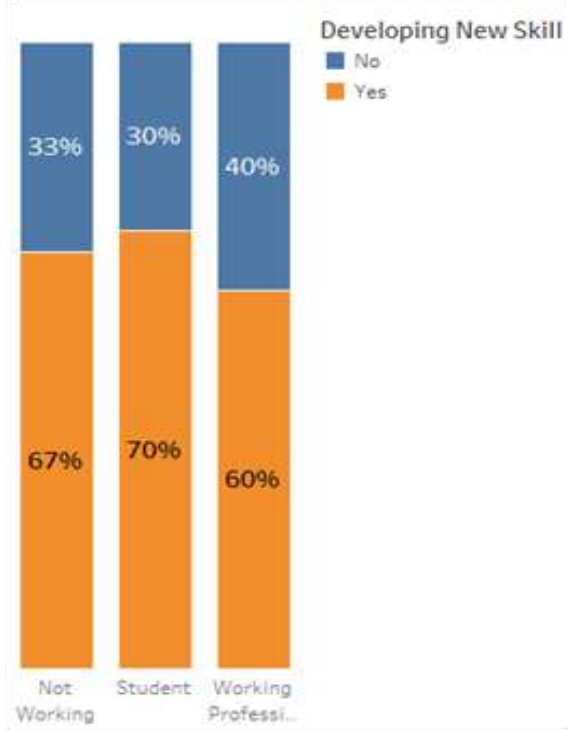


Figure 8.4: People Who Have Started Developing a New Skill/s by Profession

"**Figure 8.1**" depicts that approximately 30 percent people have started working out during the lockdown. Also, during the lockdown the number of those who do not workout has dropped down by 30 percent, henceforth, the number of those who work out has doubled during the lockdown. From "**Figure 8.2**" we can see that 66 percent of the respondents have started to work on developing a new skill/s during the lockdown and utilizing the period for self-development. From "**Figure 8.3**" we can see that those who have started working out during the lockdown the change in sleeping pattern experienced is comparatively less number than others though, among both the categories most of the people has experienced a change in their sleeping pattern during the lockdown. "**Figure 8.4**" shows that, 70 percent of the students have started working on developing new skill/s which is the highest followed by 67 percent of those who are not working have started to working on developing a new skill/s. However, those who are working professionals have comparatively less people who are working in the direction of developing a new skill with 60 percent.

Figure 9: If extending Lockdown is a Good Idea

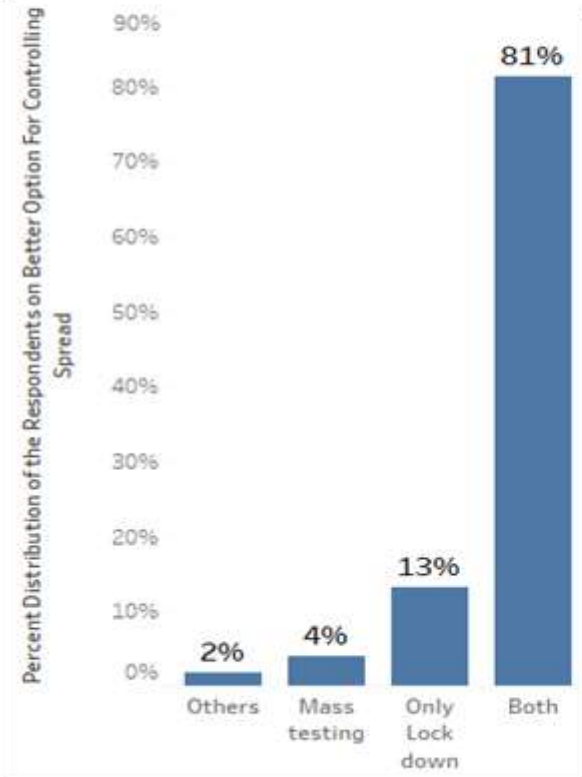


Figure 11: Respondents Opinion on Better Option for Controlling Spread

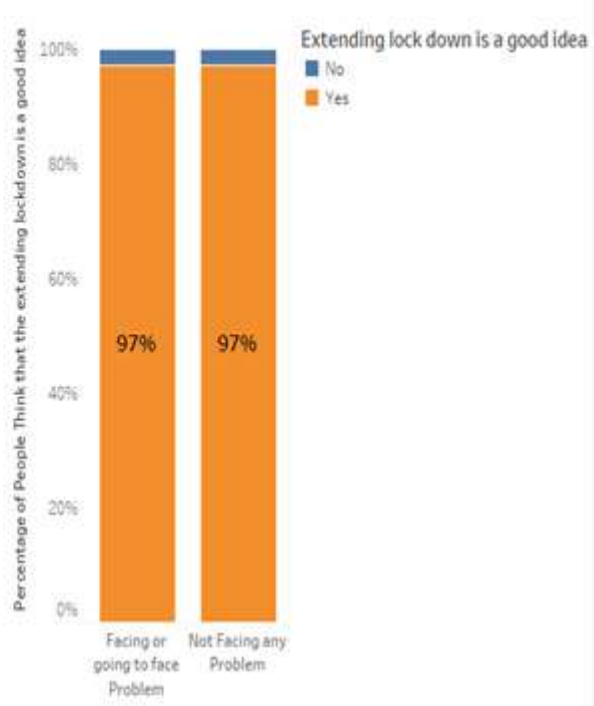


Figure 10: Facing Problem in Getting Grocery Item and If Extending Lockdown is a Good Idea

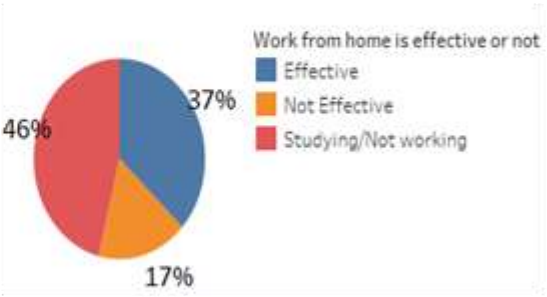


Figure 12: Work from home is effective or not

"**Figure 9**" show that, approximately 77 percent of the respondents are pro Lockdown whereas 21 percent are unsure about the decision. Only 2 percent respondents are against the decision. "**Figure 10**" shows that irrespective of whether a person is facing any problem in getting the grocery item or not most of them are in the favor of lockdown with 97 percent of the respondents.

From "**Figure 11**" we can see that 81 percent of the respondents suggest that both, lockdown as well as Mass testing are required if one wants to control the spread of COVID-19 disease followed by 13 percent people who think that only lockdown would help enough in controlling the disease spread. However, only 4 percent people think that only mass testing would be enough. From "**Figure 12**", it can be seen that more than half of those who are working says that work from home is effective with approximately 37 percent among all the respondents.

IV. CONCLUSION

Most people were supporting lockdown to stave off COVID-19 even at the cost of their daily bread and lifestyle. In fact, the lockdown has drastically changed the pattern of lifestyle and eventually our attitude towards life. It has changed people's food habit, pattern of workout, pattern of unwinding, pattern of social media usage, pattern of studying and working; needless to say all these things are correlated. Same results can be seen in many studies (Zhang and Zheng, 2020). The social media is an integral part this radical change. It should be kept in mind that social media can mold, modify one's idea and concept. It can shift one's point of view, can inspire to take decisions. This study shows the differences of thinking or opinions among different groups. Users identity social status, volume of usage of internet, specific interaction and people involved in the interactions, duration of usage contributed a lot in decision making. Anyway, people are desperately striving to cope with the 'new normal' and people will continue to do so even in post lockdown period.

REFERENCES

[1] Barkur, G., & Vibha, G. B. K. (2020). Sentiment analysis of nationwide lockdown due to COVID 19 outbreak: Evidence from India. Asian journal of psychiatry.

[2] Chandrashekhar, V. (2020). 1.3 billion people. A 21-day lockdown. Can India curb the coronavirus. Science.

[3] Paital, B., Das, K., & Parida, S. K. (2020). Inter nation social lockdown versus medical care against COVID-19, a mild environmental insight with special reference to India. Science of the Total Environment, 138914.

[4] Petropoulos, F., & Makridakis, S. (2020). Forecasting the novel coronavirus COVID-19. PloS one, 15(3), e0231236.

[5] Roy, S. (2020). COVID-19 pandemic: Impact of lockdown, contact and non-contact transmissions on infection dynamics. medRxiv.

[6] World Health Organization. (2020). Coronavirus disease 2019 (COVID-19): situation report, 85.

[7] Zhang, Y., & Ma, Z. F. (2020). Impact of the COVID-19 pandemic on mental health and quality of life among local residents in Liaoning Province, China: A cross-sectional study. International journal of environmental research and public health, 17(7), 238

The Global Battle for Sustainability Can Be Won or Lose In Cities

Ghurni Bhattacharya

Undergraduate student
Jadavpur University

Abstract: The paper titled 'The Global Battle For Sustainability Can Be Won or Lose in Cities' implies upon the fact that City with all its lifestyle and adopted practices impacts global sustainable development goals thereby plays a crucial part in maintaining balance ,Harmony and sustainability of the planet .

INTRODUCTION

The term 'Sustainable Development' involves human development, values and differences in cultures apart from the clutches of science and business development therefore "sustainable human development proposed by many organisations including gender equality, access to education, health, decision making stands in opposition to sustainable development .There are several definitions revolved such as **"A community that believes today's growth must not be achieved at tomorrow's expense."-----Governor's Commission for a sustainable South Florida, initial report October 1995** though most widely known and considered definition of sustainable development was given by Brundtland Commision. Sustainability is nothing but capacity of systems that endures, remain diverse and productive over time whereas sustainable development revolves around social and economic developmental practices adopted by not altering ecological balance.
Dynamic adaptation of the human community consequences human settlements functioning in a web of social,economic and historical relations in a specific geographical territory representing totality of human communities ,villages and towns which supports union of natural, social, material, spiritual, cultural as well as organisational factors .F Ratzal characterises city as professional activity , concentration of dwellings and number of inhabitants .Cities are epicentres of knowledge ,source of growth and innovation inspite of that provides room for social exclusion of specific group with lack of affordable residence , environmental issues , demographic and social inequalities being persisting factors proving social progress and economic growth depicting in Lisbon strategy a total failure thereby necessity for integrated strategies, coordinated actions by all individuals come in forefront throwing a beam of light to the future of cities in each layers of Government reflecting upon the broader picture of city as not just cluster and packing of houses but it's manifestations would spread worldwide being complex in nature . Major people resides in cities contributing to less green patches ,strain on resources and cars on road, increase in temperature accompanied by walking biking gets more riskty ,housing becomes expensive and transit gets overcrowded ,even livelihoods are wiped out forever due to natural calamity ,migration rate to urban areas is also high hence cities should be livable without destructing the globe thus concept of sustainable cities developed .

BODY

Cities being metropolitan areas occupying three percent land of the earth are powerhouses of economic growth yielding sixty percent of Gross Domestic Product accounting for seventy percent of global carbon emissions accompanied by sixty percent of resource use where inequalities go hand in hand coupled with the fact that one billion people live in slums and the number increased with rapid urban energy consumption and pollution level thus prone to climate change and natural disaster due to higher concentration of settlements thus urban resilience plays crucial role in avoiding losses along with pollution deteoriating individual's health affecting productivity of labor thereafter natural disaster along with economy disrupts individual's way of living hence the concept of sustainable cities emerged whose benefits is more than the cost of implementation of the sustainable practices .

The concept of Sustainable City is intertwined with providing basic amenities along with necessary infrastructure of Civic amenities in terms of health and medical care ,housing ,education ,employment , transportation ,governance and the infrastructure of sustainable city engages waste, water, sewage, food, parks, public spaces barring any discrimination where emphasis should be priorly given to those living in subhuman conditions in below poverty line charactising upon the fact of controlled population where adequate employment is accessible with adequate governance set up ensuring community participation ,Civic responsibilities ,planned housing colonies with proper infrastructure such as schools ,parks ,drainage system, medicare etc ,facilitating well-knit transport system with the aim of reducing total vehicle kilometre driven in order to reduce pollution as well as effective environmental infrastructure reflecting crucial issues of waste polluting rivers ,lakes and coastal zones and addressing untreated sewage ,development of health Care system highlighting upon the issues of nutrition, sanitation and family planning ,mechanization in policy initiative in terms of industrial dispersion for satellite townships accompanied by women empowerment in political, social, economic spheres of city and development of urban private sector with job opportunity is also one of the prime conditions where city yields basic amenities for reasonable standard of living where resources being regenerated and sustained and not depleted which consequences in advantageous situation as healthy cities contribute to build healthy nation though population growth, Inadequate economic growth and lack of funds ,increased shortage of residence ,strain on education and health care ,rapid increase in transportation network and non implementation of legislation stand as barrier in the development of sustainable cities though NGOs

play a pivotal role depicting environmental issues for instance the Clean India initiative . FARN's research emphasized that water quality and noise quality can be benefitted from the establishment of sustainable city .Empowerment ,Security ,Opportunity ,Financing are considered to be some of the basic aspects of sustainable city .The rapid pace of urbanisation transforms socio economic fabric of Nation as well as cities play a crucial role to gain sustainable development being responsible for bulk production and consumption .education and focus of attention upon urban challenges and future opportunities, mobilization and Empowerment of all urban actors, addressal of challenges specific to urban poverty ,promotion of integrated innovative infrastructure design ,promotion of planning of land use and spatial concentration ,ensure disaster risk reduction and climate change are some accomplishment of urban sustainable development goals which vividlly depicts the world's need for urban sustainable development goals .consequencing the facts that due to sustainable development lifespan of the people increased leading healthier lives ,life expectancy at birth for men ,women combined increased eighty years ,Income having impact on life expectancy therefore rich and educated people live longer than poorer whereas genes considered to be not so important determining life expectancy whereas lifestyle does.

CONCLUSION

It is clearly evident throughout this paper that establishment of sustainable cities is essential as healthy cities would contribute to build healthy nation associating far reaching global impacts hence adoption of ways such as empowering cities including delegation of more financial power to cities, need for national level support ,importance of integrating new migrants into urban fabric, preparation for future tasks in order to make city life more livable and sustainable thereby the title of the paper is justified following the argument of the paper .

REFERENCES

[1] http://archive.rec.org/REC/Programs/SustainableCities/AdvantagesArgentina.html
[2] https://www.intechopen.com/books/sustainable-cities-authenticity-ambition-and-dream/introductory-chapter-overview-of-sustainable-cities-theory-and-practices
[3] https://www.devalt.org/newsletter/jul00/lead.htm
[4] https://www.nrdc.org/experts/shelley-poticha/future-green-why-we-need-sustainable-cities
[5] https://www.weforum.org/agenda/2015/02/how-sustainable-cities-can-improve-lives/
[6] https://www.afd.fr/en/actualites/these-12-indian-cities-are-future-sustainable-urban-development
[7] https://en.m.wikipedia.org/wiki/Sustainable_city
[8] https://www.smartcitiesdive.com/ex/sustainablecitiescollective/21-features-future-sustainable-city/285946/
[9] https://www.bbc.co.uk/bitesize/guides/zqvxdmn/revision/2
[10] https://oxfamliving.oxfam.org.au/2017/08/21/5-essential-features-of-sustainable-cities-and-eco-cities/
[11] https://www.connect4climate.org/infographics/how-can-cities-become-more-sustainable-klimalog-bmz\
[12] https://alum.mit.edu/slice/how-can-cities-become-more-livable
[13] https://www.thenatureofcities.com/2013/05/08/the-cities-we-want-resilient-sustainable-and-livable/
[14] https://www.weforum.org/agenda/2015/09/10-key-steps-to-make-our-cities-liveable-by-2030/
[15] https://www.smartcitiesdive.com/ex/sustainablecitiescollective/21-features-future-sustainable-city/285946/
[16] https://blogs.scientificamerican.com/observations/3-ways-cities-can-become-more-sustainable/
[17] https://ehs.unu.edu/news/news/five-ways-to-make-cities-more-sustainable-and-resilient.html
[18] https://ensia.com/notable/sustainable-cities/\
[19] https://theconversation.com/amp/our-cities-need-to-go-on-a-resource-diet-68984
[20] https://link.springer.com/referenceworkentry/10.1007%2F978-1-4419-0851-3_441

EFFECT OF WASTE CLOTH ON THE PROPERTIES OF BLACK COTTON SOIL

[1]Prof. Sharankumar Mathad, [2]Mr. Sangmesh

Geotechnical Engineering,
Bheemanna khandre institute of Technology /V.T.U,
TQ:Bhalki DI:Bidar Karnataka ,India

***Abstract*: The black cotton soil is mainly inorganic clay and owns medium to high compressibility, this soil also referred as expansive soil. The properties of the soil are influenced by the environment condition the soil gets swell during winter season and shrinks during summer seasons .the black cotton soil was unable to withstand the high impact load from the heavy structures due to constant change in properties of the soil parallel to environmental condition, in order to make it possible the black cotton soils are get mixed with the stabilizing materials ,in the same manner in this analysis the black cotton soil properties are analyzed by using waste cloth. The highlighting reason for using waste cloth is because of its easy availability, eco-friendly and its fibrous properties. The waste cloth are collected from the cloth shop and stitching shop, the black cotton soils are collected from the city of Bhalki.**

***Keywords*: Black cotton soil, waste synthetic cloth, SPT test, UCT test, Direct shear test.**

1. Introduction:

The black cotton soil it is an expansive soil the load bearing capacity of an B.C.soil is collectively recessive, in the presence of heavy structure laying foundation over B.C.soil is very important to spike the load bearing strength of an B.C.soil, as a result various stabilizing materials utilized to spike the B.C.soil strength properties. In the previous work the waste cotton cloths are used and mixed with high percentage of cotton cloths, but in this existing work the B.C.soil are incorporated with the synthetic cloths at the percentage of 0.5%,1%,1.5%and 2% by the weight of soil. In order to analyze the effects of the B.C.soil properties in the presence of synthetic cloth as a stabilizing materials. Finally after performing the entire test successfully the project work comes out with the result that the stabilizing materials shows increase in the strength properties o the B.C.soil.

2. Material used:

2.1 Black cotton soil:

The black cotton soil it is a core material of this project, this soil shrinks and swells in high moisture content region .The B.C.soil was collected from the place called as Bhalki. The shrinkage and swelling of an B.C.soil makes unsuitable for the load bearing of the heavy structures.

Fig 1 b.c.soil

2.2 waste synthetic cloth:

The main stabilizing material in the project study is the waste synthetic cloth, the reasons behind utilizing this is because of its fibrous properties which was helpful in imparting the strength properties of the B.C.soil. The waste synthetic cloth was collected from the cloth shop and stitching shops as required amount.

Fig 2 w.s.cloth

3. Methodology:

The properties and characteristics of B.C.soil are visualized with the combination of stabilizing material waste synthetic cloth with four trials for in a laboratory studies. The result obtained after performing the laboratory test are compared. And the effects of stabilizing materials over B.C.soil are determined.

→ Atterberg limits.
→ Standard proctor compaction test.
→ Unconfined compression test.
→ Direct shear test.

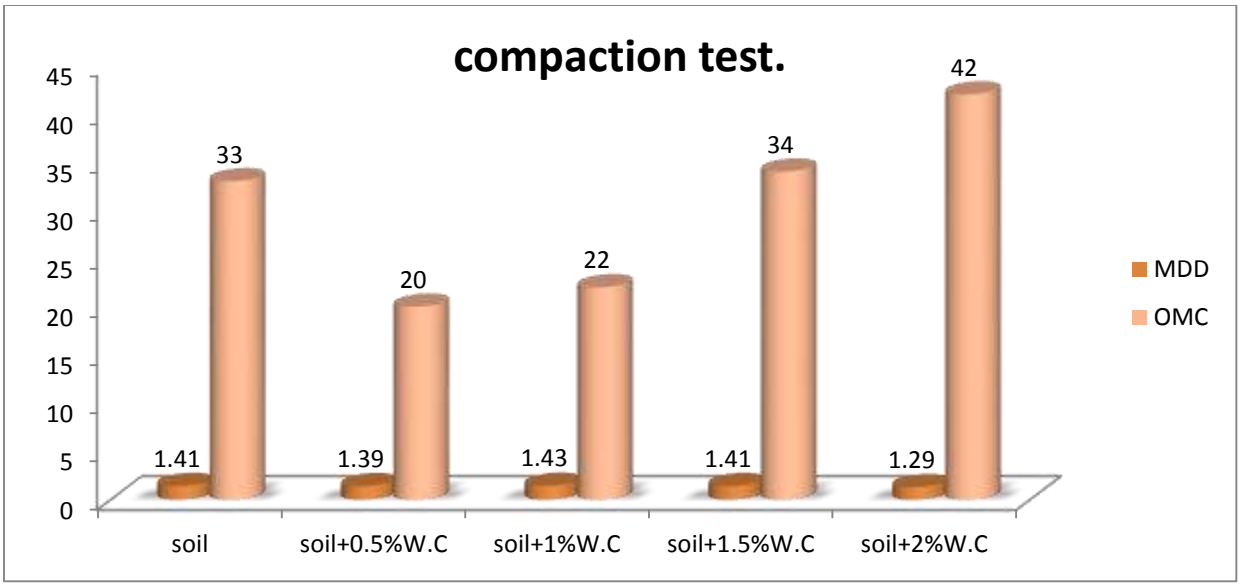
4. Test results.

4.1 Test on soil : Initially the basic tests are performed on the Black cotton soil in order to aware about the properties of Black cotton soil, and the test result shown in the

Table:1

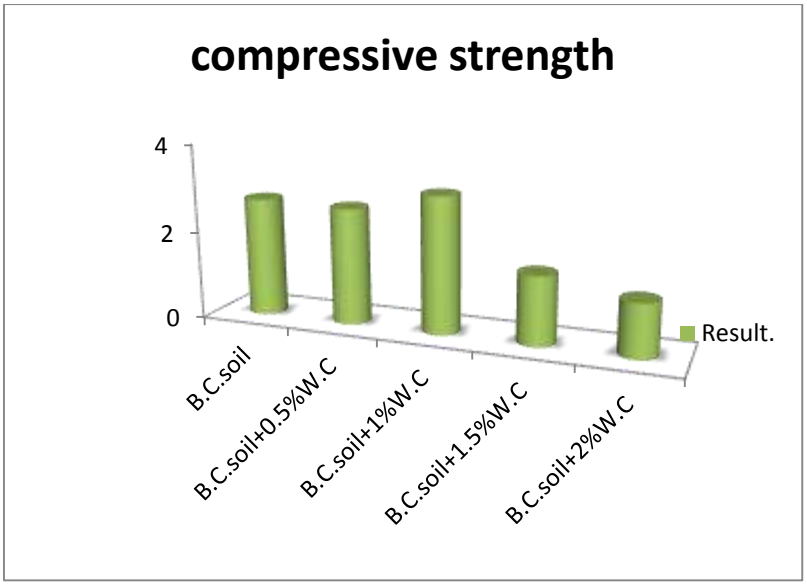
S.NO	Test	Result
1.	Moisture content	22
2.	Specific gravity	2.675
3.	Liquid limit	66%
4.	Plastic limit	50
5.	Plasticity index.	16
6.	Unconfined compression test	2.71kg/cm^2
7.	Maximum dry density	1.41gm/cc
8.	Optimum moisture content.	33.33%

4.2 Standard proctor test: The test performed on the B.C.soil with the stabilizing material for a three trial of 0.5%,1%,1.5% and 2% to analyze the soil properties.

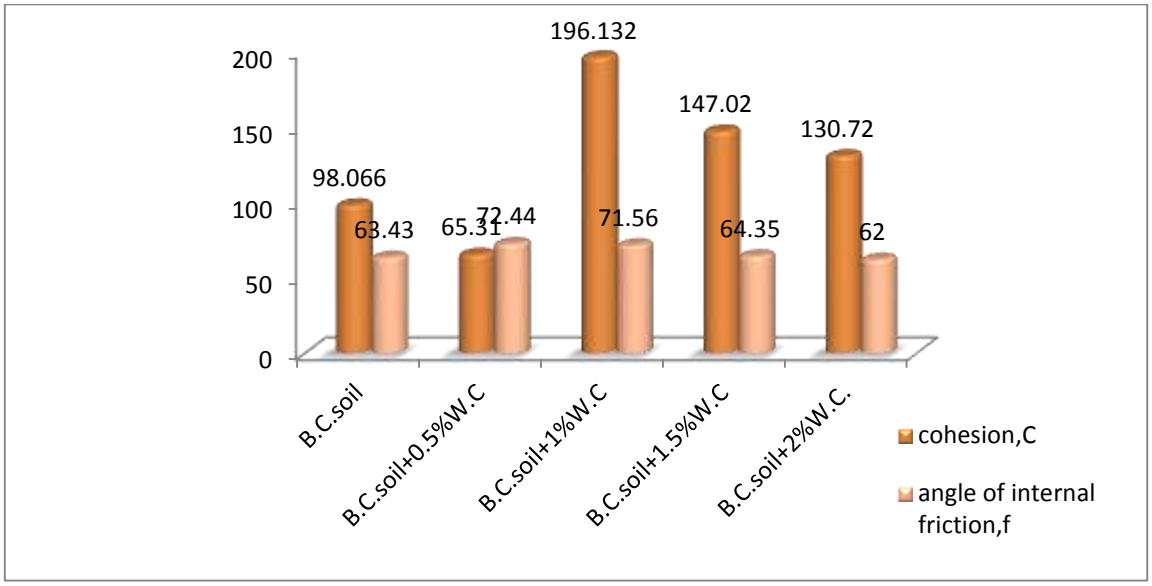


4.3 unconfined compression test:

S.NO.	test	Result.
1.	B.C.soil	2.71
2.	B.C.soil+0.5%W.C	2.65
3.	B.C.soil+1%W.C	3.1
4.	B.C.soil+1.5%W.C	1.56
5.	B.C.soil+2%W.C	1.21



4.4 Direct shear test.



An Agile Methodology at Telecommunications Morpho

Dr. Tiago F. Alwes de Olivei

Assistant Professor
Lakehead University, Canada

***Abstract*: It is winding up clear, not minimum from the pages of this distribution, that lithe advancement strategies are being embraced or possibly considered by a developing number of programming improvement groups and associations. Regardless of whether you are as of now a functioning specialist coordinated advancement, or thinking about its appropriation on your venture, you will know about the business benefits that can be determined through quicker and increasingly powerful programming conveyance also the persuasive effect it can have on improvement groups[1]. On the other hand, possibly you work for a substantial association that presently cannot seem to make any genuine advances into dexterous improvement and are left considering how deftness could be made to chip away at a vast scale. In case you're in the last camp, or regardless of whether you are not effectively thinking about spry improvement in that capacity but rather are attempting to convey expansive and/or complex projects utilizing customary methodologies and wishing there was a superior way, at that point you are most likely where British Telecom (BT) wound up in 2004. [2]That was previously the landing in the organization of another CIO who methodically started supplanting the organization's long-standing cascade-based conveyance forms with one that encapsulated the key standards of nimble conveyance. This article shows a review of the methodology taken by BT, outlining how light-footed advancement standards can be connected effectively at the venture level. Obviously, the methodology taken by BT is not for the timid – it has incorporated a high level of hazard, and surely a great deal of torment. Presently very much into its second year be that as it may, even though the change is a long way from finish, it is as of now paying profits.**

***Index Terms*: Agile, Telecommunications, Project management, Big Design, British Telecom, CIO, DSDM**

[1] **Introduction:** BT utilizes about 8,000 IT experts in an assortment of jobs including venture and conveyance the executives, design, and structure, programming building, joining, and testing, operational help and administration the board. A lot of its inside focused advancement work has generally been directed through various business-focused conveyance tasks or projects, extending from very little, straightforward improvements to substantial scale and complex business arrangements, the last tending to be the standard. [3]The prevalent conveyance approach, surely for the bigger conveyance programs, was particularly cascade based. The utilization of deft improvement practice, outstandingly DSDM and Scrum, was constrained to few genuinely little, independent advancement groups. BT was in certainty one of the establishing individuals from the DSDM [4]Consortium and took a functioning part in forming the strategy in its initial days. Regardless of effectively conveying various huge, complex arrangements into a dynamic, focused yet exceptionally controlled business condition, numerous critical change programs were attempting to convey any prominent outcomes in a worthy time span. As a feature of a CMMI-roused[5] enhancement system, endeavors had been made to formalize recognized best practice forms into a standard conveyance strategy. In 2004, this standard philosophy was being taken off when the new CIO clarified that a completely new light-footed methodology was required.

I. **Downsides of the cascade:** Support of momentum cascade-based practices was not by any stretch of the imagination the appropriate response in any case. A significant number of the conveyance issues experienced at BT,[6] and no uncertainty other expansive associations, originate from the idea of the cascade lifecycle itself. A few instances of these issues are given here. For an increasingly entire pulverization of cascade rehearses, allude to Craig Larman's phenomenal work.

II. **Poor necessities to catch :** Catching necessities positively is certainly not an awful thing. On common extensive projects, be that as it may, [7]Singular business partners are on edge to join most of their known necessities into the first/next discharge "Gold clients" produce hundreds, if not a huge number of definite prerequisites that regularly bear little relationship to the business issues that should be tended to.

III. **Most if not all prerequisites are given a high need:** The prerequisites themselves, best case scenario, speak to the present view, which will absolutely have changed when the necessities are really executed

IV. **Separated structure :** Given the sheer number of necessities, the structure network ends up investing most if its energy endeavoring to make sense of what they mean. In the interim, the necessities investigators proceed onward to different tasks, taking with them critical implicit information. A few partners wind up worried that their prerequisites are not being sufficiently tended to, and in this manner decline to close the structures. Different partners uncover more prerequisites or raise change demands, occupying rare plan aptitude onto affect examinations

V. **Advancement crush :** With the plan organize having slipped, advancement groups wind up under extraordinary strain to convey segments into the incorporation condition by the initially concurred date. They regularly take the choice, reluctantly, [8]to begin advancement against an insecure plan, as opposed to do nothing or redirect assets to different projects. Framework testing is stopped with the goal that unique timescales are met, and the program apparently is on target.

VI. **The coordination cerebral pain:** The coordination group has a set number of weeks amid which it needs to incorporate what it hopes to be completely useful and generally sans bug code. Considering the unsteadiness of the part code, and the absence of any compelling relapse test capacity, exertion is rather redirected to attempting to determine rudimentary bugs in the conveyed code, liaising with an improvement group that is presently occupied with the following real discharge. [9]Real combination thusly

keeps running into months, making a thump on impact on different projects requiring the administrations of the Integration group, also dissatisfactions inside the business network who had been caught up with setting themselves up for an on-time conveyance.

VII. **The arrangement bad dream:** It is currently no less than 6, or even 12 – year and a half since the business initially recognized the requirement for this specific arrangement. Bargains and oversights made amid the prerequisites and configuration stages, trailed by de-perusing amid improvement has brought about an answer that bears little association with what was initially imagined. Additionally, the world has really proceeded onward meanwhile. The business at that point finds that the arrangement is not fit-for-reason and declines to embrace it. More awful, they receive it and before long find that it is moderate, blunder inclined and needs key highlights, and inevitably return to the old framework. [10]The final product – more shelfware! Right off the bat in every conveyance cycle, the program sets out clear focuses for what it hopes to accomplish for the business amid that cycle. These objectives perpetually incorporate a solid accentuation on the end-client encounter, for example, reaction times, exchange achievement rates, etc. Toward the finish of the cycle, the program is surveyed against these objectives, and the result of this appraisal will impact the planning of extra installments for the program colleagues. Projects neglecting to convey business esteem over a progression of cycles confront being shut down by and large. This obviously puts a specific measure of weight on the (interior) client to be clear about the business needs and the highlights that would give the best rate of profitability. It likewise necessitates that the client is prepared and ready to send the arrangements into the business and understand the planned advantages. By and by, programs frequently take at least two 90-day cycles to advance a specific answer for a point where it is fit for arrangement. All things considered, there is an open door toward the finish of each cycle to survey what has been conveyed up until this point, and to give input dependent on what has just been produced.

[2] **Early Reflections:** Despite some turmoil at the start, and some painful failures among some of the earlier hot houses & delivery cycles, the new practices have now become accepted as the norm across BT. Now well into the second year of its shift from waterfall to agile delivery practices, few people would be willing to revert to pre-Agile practices. In fact, most programs are now seeking ways of refining their delivery processes further by adopting truly iterative & test-driven development practices within each delivery cycle. However, some observations would be worth noting. Firstly, when you're embarking on an agile delivery strategy at the enterprise level, it is imperative to quickly establish a 'critical mass' of people who not only grasp the ideas behind it but are also comfortable with its application. To establish that critical mass, you will probably need to turn to outside help. Several consultancies now specialize in the adoption of agile practices within large organizations. [11]BT chose to use two different companies, each of which brought different strengths and perspectives. Further to this, it is also essential to establish a strong central team to provide ad-hoc support, nurture the new techniques, and to actively support the new practices. Certain agile practices, such as test-driven development, are harder to adopt when most of your development is based on legacy code and / or externally-sourced components. Similarly, continuous integration becomes extremely complex when some of your main components are shared across multiple programmes. Some of BT's programmes are now pursuing test-first and continuous integration techniques, but this takes time and investment and is only being done on a selective basis. For Agile Development to work at the enterprise level, you still need to pay due attention to your systems architecture. "Big Design Up-Front" (BDUF) may not appeal to the agile purist, but re-factoring of an enterprise architecture simply is not practical. Not all delivery activity fits neatly into the agile development model. Given a choice however, the natural tendency is to pursue most activities using the traditional approaches – you can always find some excuse why "the new approach" is not appropriate on your project. If you go down this road, agile delivery will at best become a niche activity.[13] At BT, a strong mandate ensured that all programmes put the new practices to the test whether this seemed logical or not. This helped to break through the "pain barrier" and to ensure that the new practices were given a real chance of taking hold.

To be truly effective, the agile approach needs to reach right across the business, not just the IT organization. You might expect that the business would be excited at the prospect of having regular deliveries of valuable functionality. However, the business also needs to move away from traditional waterfall practices and change how it engages with the IT organization. It also must place its trust in the IT [14]organization (something that certainly takes time) that it will deliver as promised. It then needs to ensure that it is geared up to exploit the deliveries to gain maximum business benefit. Finally, remember the adage – "There's no gain without pain!" Applying the principles described here on large projects or programmes in typical large organizations requires courage, determination, and no small degree of risk. Also, such a radical strategy requires absolute commitment from the very top.

[3] **Conclusion:** Re-orienting a large IT organization from pursuing well-established waterfall-based delivery approach to be a truly agile delivery unit takes patience and time, as well as a lot of commitment. In BT, where the initial steps towards enterprise agile delivery were taken late 2004, there has been a noticeable and decisive shift away from waterfall-based thinking. It has also transformed, quite radically, the traditional function of the IT department as a supplier of IT services to one where IT is now seen as integral to all major business initiatives. Above all else, it has created an attitude, bordering on obsession, of delivering real value to the business through IT. Despite the early successes however, it is clear within BT that there is still a long way to go before it can consider itself to be truly agile. For any large organization, the journey from waterfall to agile can be very long and challenging. As with other proponents of Agile Development however, few at BT would want to turn back to the old ways.

References:

[1] DaYong Sang, Wang Ying and LiHua Wu, "Agile Software Development Methods and Practices" in , Xi-an:XIDIAN University press, pp. 160-180, 2010.
[2] Kurt Bittner, JingWen Luo, CanFeng Luo and HongYi Zhang, "Managing Iterative Software Development Projects" in , Beijing: Tsinghai university press.2010, pp. 109-130.
[3] PengZhiNan, "Agile development in software development application research", Chengdu: university of electronic science and technology, 2009.
[4] Shen Lei and Bei Jun Shen, "Research and Practice of Agile methods", Computer engineering, vol. 30, no. 7, pp. 219, 2005.
[5] XiaoHua Wang, "Software Reliability analysis and relevant problems study in agile development environment" in , Guiyang:GUI Zhou University, 2008.
[6] XiangYang Wang, "Limit research and application" in , Wuhan:Wuhan University, 2004.
[7] Cohn Mike and Song Rui, "Agile estimation and planning" in , Beijing:Tsinghai university press, pp. 36-87, 2007.
[8] Mo Ying, "Duty gives birth to the Dao-trace the source of agile development", Journal of programmers, no. 8, pp. 52, 2007.
[9] Xiao Qing Zhang and Hu Wei, "Shallow Judicators about Instant Acceptance in Agile Development Application", Programmer, vol. 3, 2009.
[10] XiaoYi Wang, "Reconstruction Secret of Agile Developing", Software World, pp. 21-59, 2007.
[11] Yang Na and YiHui Zhou, "The Agile Development and Reconstruction", Fujian Computer, pp. 12-138, 2008.
[12] C.M Robert, Martin, Micah Martin. Deng Hui and Sun Ming, "Principle Mode and Practice of Agile Software Development" in , Posts & Telecom Press, pp. 123-156, 2008.
[13] DaYong Sang, "Requirement Analysis of Agile Development Process", Programmer, vol. 2, pp. 70-75, 2009.
[14] Negotiating Structural and Technological Change · Volume 23 By Brian Bolton, International Labour Office · 1993

Skin Cancer Classification Application Using Flask

Dr. Ramakant Salve

Associate Professor
Department of Electronics and Telecommunication Engineering,
Savitribai Phule University, Pune

Abstract*: Melanoma is one of the predominant types of skin cancer. The affected number has been increasing year after year. Although the deaths can be minimized by early detection and there is where the problem exists and consulting a dermatologist may not always guarantee the success of early detection and diagnoses. At first, the dermatologist examines the skin visually and decides whether it's a type of skin cancer or a skin allergy. The accuracy of the diagnosis directly corresponds to the experience of the dermatologist. Even a small error in the inspection of the skin might end a life of a person so it is really necessary to have a standard and supporting system which can help dermatologists to identify and diagnose the patients is necessary. So with the advancements in image processing and deep learning algorithms have unleashed the potential to classify and identify the type of skin cancer with a single click of an image. The traditional method involves a lot of pre-processing steps and if something goes wrong in that step the model doesn't perform well. The accuracy won't be up to the mark this is where the Convolutional Neural Networks come into the picture. These models don't require any feature extraction or with some minimal pre-processing steps to be done and it consumes a huge amount of data to be well trained. In this paper, we will compare the transfer learning with end-to-end trained custom deep learning models. It classifies the images into seven different classes. The model is deployed on the web locally which will be handy for the dermatologist to use it as a User Interface for assisting with the identification. The model with the transfer learning shows good results than the one which is trained from scratch. The plots show the difference between them and the way in which they train.

Keywords: Convolution Neural Network, Flask framework, skin cancer, lesion classification, deep learning, Max pooling

I. INTRODUCTION

Humans are becoming more vulnerable as the decades pass by. More and more diseases are affecting and the concern is that the mortality rate due to cancer is increasing. Melanoma is a type of skin cancer that affects the surface of the skin. This type of cancer might be caused due to high exposure to UV[1]. Taking global warming into consideration the danger bar is raised high. These are other factors such as increasing high-temperature climatic conditions and many more. The most common types of skin cancer include melanoma, basal, and squamous cell carcinoma. [21]. Even though it is visible to our naked eye unlike other cancers we don't care about that too much is some cases. There a lot of cases where the patients don't even realize that they have this medical conduction. Moreover, some take it lightly as some kind of allergy and don't treat it properly. By doing this they bring the danger to their doorsteps. The dataset used is takeup from the ISIC (International Skin Imaging Collaboration) 2018: Skin Lesion Analysis Towards Melanoma Detection Channelge[24]. The most common type of cancer is Basal cell carcinoma which is not deadly as melanoma[3]. These are a total of seven types that are classified by the model. The squamous cell carcinoma is another type that accounts for about 20% of skin cancer and also not as deadly as melanoma. Early identification of these has a high rate of recovery. Fig. 1 shows the sample image that is used to train the model.

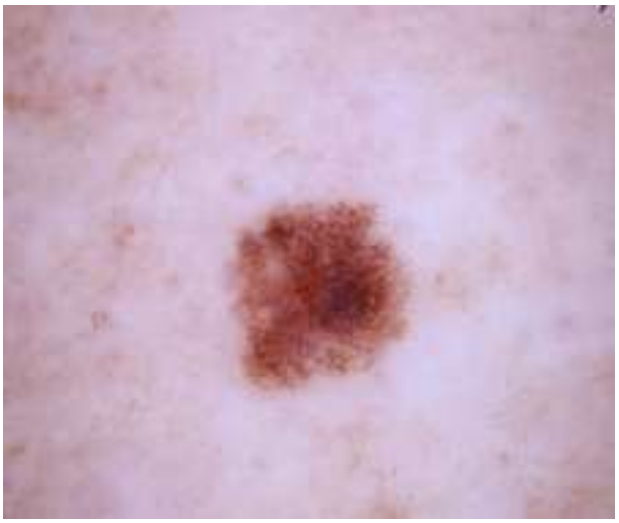


Fig. 1. Cancer affected skin image

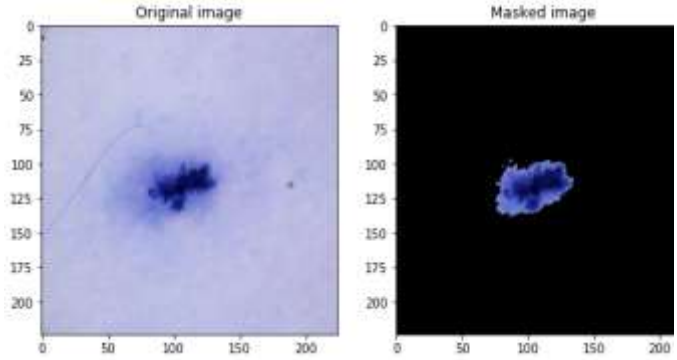
II. Existing System

From a dermatologist perspective, the suspicious skin has to be visually examined, and then if it requires more study the image is captured in a high-resolution camera that reviles hidden details of the layers of the skin. The detection is directly based on the experience of the physician which has not standard accuracy[9]. This can be automated with the help of state-of-art algorithms, it has been proven that these kinds of classifications are done with great accuracy[15]. The best accuracy of the k-nearest neighbors (KNN) algorithm is found to be 79% and with that as a baseline.[8] If we see CNN models that can easily outperform those models in terms of accuracy. The features are extracted from the images manually and support vector machine (SVM) learning algorithm is used for classification and with an accuracy of 93.1%[9]. These systems use manual or with some automated feature selection process to train and classify the types of cancer.

III. Proposed System

3.1 Methodology

The region of the skin is masked with auto threshold segmentation and it can also be done by manually setting up the pixel value. The color frequency can also be used to do the same kind of cancer region segmentation. The region of the cancer is masked to give a clear view of the pixel where the cancer is present[14]. The input image consisted of three color values. By tunning it to the desired value the maks can be created even accurately. Since it provides better visualization of the region rather than doing an auto segmentation. The masked region of cancer is shown in Fig.2



(a) (b)

Fig. 2. (a) & (b) Cell masking using threshold

One of the main focus of the paper is to make it easily accessible to the physicians for supporting them. Fig.3 shows a visual representation of the web application and who it works. So the web application consists of a single framework that responds to the physician's request. The model is first created and then the model is used in the backend to classify the class. When the request comes in the image is taken back to the model and the prediction is made and the result is displayed in the web application. In this way, the physician will be assisted in the diagnose of skin cancer.

This web application must be hosted in a cloud server so that it is accessible to all. If suppose the dermatologist feels that the model is misclassifying a certain image wrongly. Then the model can be re-trained on those particular sets of images to make it more accurate. The hardest part is getting diverse images for all types of skin cancers. If you can enable the model with those images the model will eventually be more accurate on the real-time images.

When the application is hosted the home page will have an upload button where the image has to be uploaded and after that, a preview of the image will be shown to verify the uploaded image. On prediction, the image is taken into the flask framework where the class of the image is predicted and the name of the class is returned to the user interface.

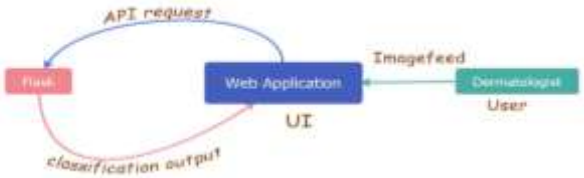


Fig. 3. Flow Diagram of Web Application

3.2 CNN Architecture Design

Fig.4 shows the custom model that is been built by using various layers of deep learning so that the model exhibits high accuracy. The size of the input image is 224x224 in the RGB(Red,Blue,Green) format. MobileNet V2 is used in the front portion of the model to increase performance[16]. The output of that model is again passed into several other layers to get the most out of the model. They consist of convolutional layers with batch normalization and the ReLu activation function is used. The same is stacked up multiple time and finally, the output layer is a neural network with seven output nodes with the flatten layer as the previous layer. [19]

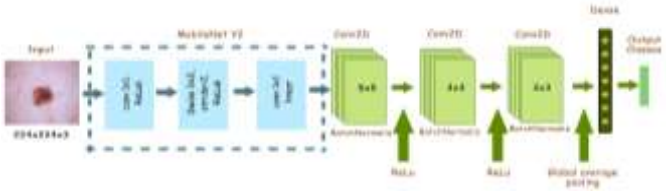


Fig. 4. The architecture design

The dropout is added to ensure that there is no overfitting in any stage of training the model. Each of the layers contains various layers of convolution, Activation, and max-pooling. CNN architecture has been a powerful asset in image processing and detection tasks[25]. They have been dominating the classification field in terms of accuracy in the prediction of images. The last neural network in the one that does the actual prediction work. There are two categories in which the model is trained. The first one is trained using the weights from the ImageNet and the other one is trained end-to-end from scratch.

IV. Experiment Result

4.1 Plots

Fig.5 shows the training and validation accuracy of the custom model during each epoch. The spikes are up since most weights are already in the right place. The weights from the ImageNet is really helping the model to train rapidly on the new image data. The resultant accuracy is somewhere around 95%. The accuracy is somewhat stable at the end of the training.

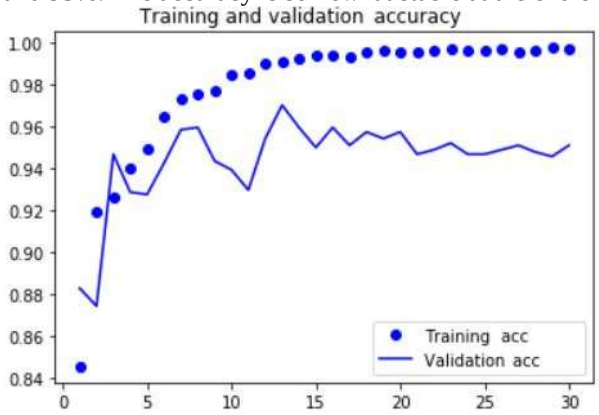


Fig. 5. Training Plot of the custom model

Fig.6 shows the loss of the custom model during each epoch. We can observe the same kind of downward spikes in the loss that is calculated. The loss is being stabilized in the last part of the training and that shows that the model is trained for the maximum accuracy.

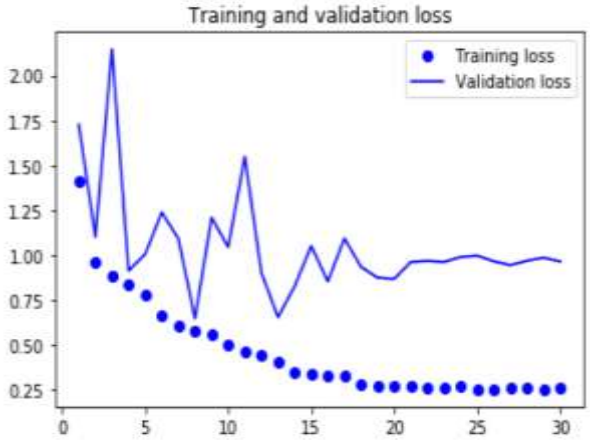


Fig. 6. Loss Plot of the custom model

Fig.7 shows the training plot of the end-to-end trained model during each epoch. The model is slowly trained and dips at a point and starts training. The model is taking a lot of time to train and fit the images.

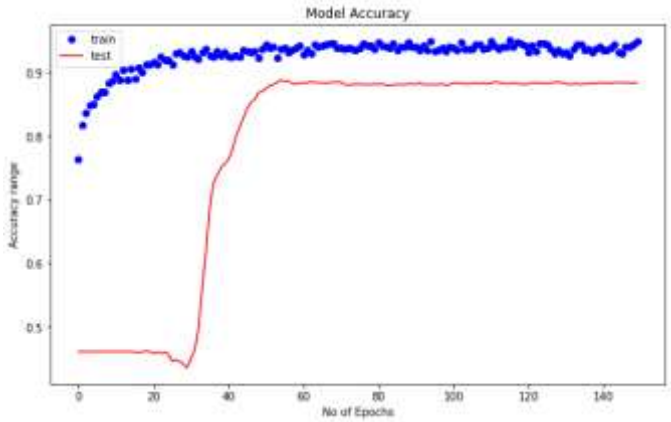


Fig. 7. Training Plot of the end-to-end trained model

Fig.8 shows the loss plot of the end-to-end trained model during each epoch. Initially, the loss is very high and it converges really slowly.

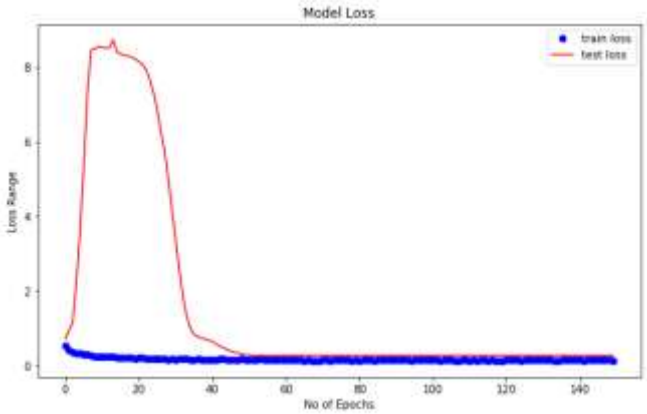


Fig. 8. Loss Plot of the end-to-end trained model

4.2 Confusion Matrix

The easiest way to check whether the model performance good is by using confusion matrix. The confusion matrix gives an overall summary of the predictions that are made. The tabulated format can be easily interpreted. It shows both the positive and negative errors in a single table format.

Fig. 9 shows the confusion matrix that is plotted at the end of the training. A total of 939 images are classified and the performance metrics are analyzed. We observe that the Melanocytic nevi which have a large number of images are classified most accurately. The confusion matrix is for the end-to-end trained model

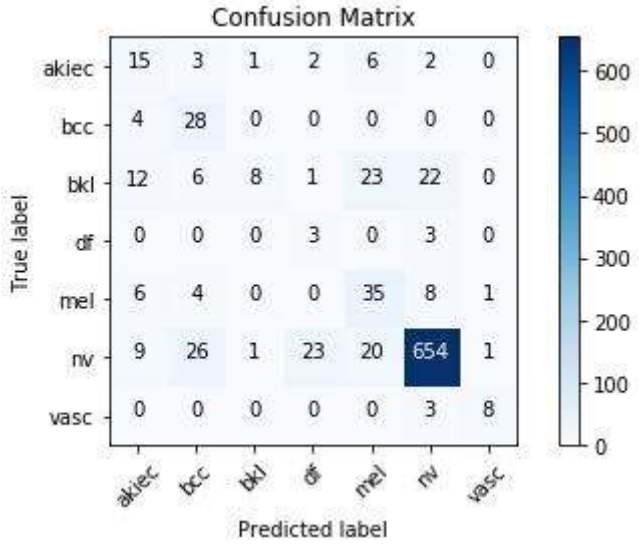


Fig. 9. Confusion Matrix of the model used

4.3 Web Application Output

The home page of the application is shown in Fig. 10, Once you upload the image a preview will be shown.

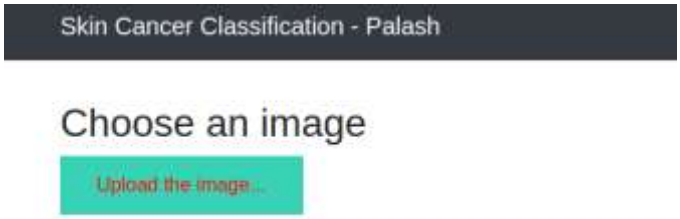


Fig. 10. Home Page Application

The preview of the uploaded image is shown as a confirmation and you can make the predictions from there as shown in Fig. 11.

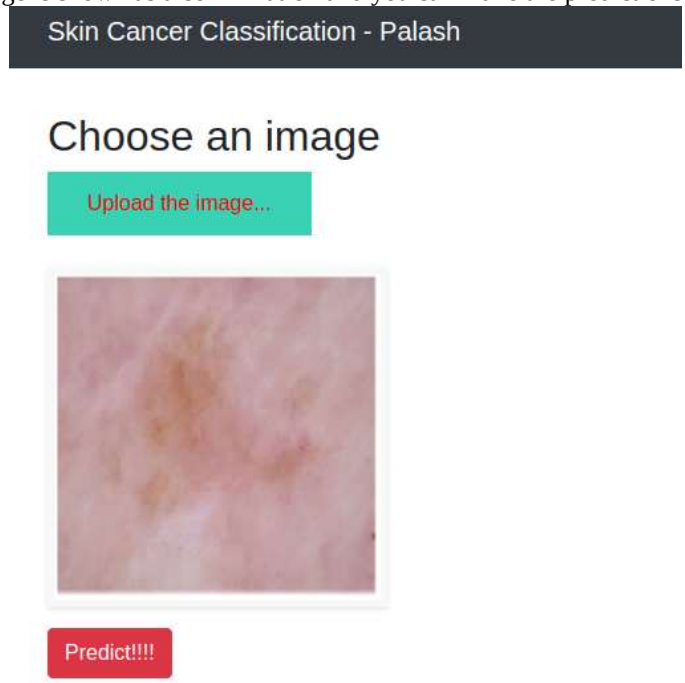


Fig.11. Preview of the uploaded image

Now the image is taken into the flask framework where the prediction is made and the result is shown on the same page as shown in Fig. 12.

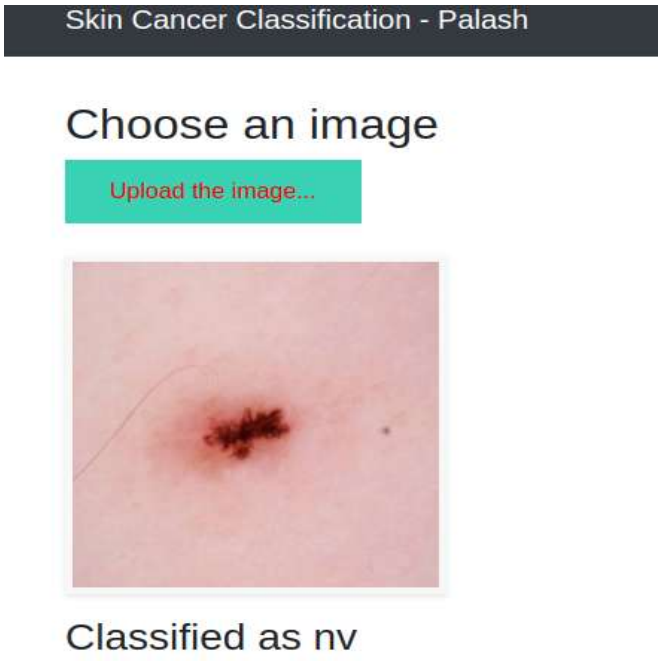


Fig. 12. Result Page

.

IV. CONCLUSION

The entire framework is deployed in a local server which needs to be hosted on a cloud platform to make it accessible for wider adoption and usage. The trained custom model achieves an accuracy of around 95%. The custom model with the transfer learning is more accurate than the model that is trained end-to-end from scratch. The model works fine with most of the images due to the fact that the dataset is very complex to train due to the similarity in the types. The types are too similar in nature so that the model is still struggling a little on that. Collecting more dataset images on those types will be handly when it comes to classifying such kind. The wide adoption of this web application will benefit and make the model even more accurate. The same web application can be altered in such a way that it fits other classification applications as well. This is made possible since the model is constructed in a generic way to fit medical images. Periodic updates and new tech components can be added as per the needs. Further work can be on the database management for the physicians and getting their details for collaborative work. It will be really helpful in case of a large outbreak.

REFERENCES

[1] Codella N, Rotemberg V, Tschandl P, Celebi ME, Dusza S, Gutman D, et al. Skin lesion analysis toward melanoma detection: A challenge at the 2017 International Symposium on Biomedical Imaging (ISBI), hosted by the International Skin Imaging Collaboration (ISIC). 2018 Presented at: IEEE 15th International Symposium on Biomedical Imaging (ISBI 2018); April 4; Washington, DC, USA.

[2] XU Meifeng, GUO Leida, SONG Panpan, et al. Skin Disease Recognition Method Based on Multi-Model Fusion of Convolutional Neural Network[J]. Journal of Xi'an Jiaotong University, 2019, 53(11):125-130.

[3] Noel Codella, Veronica Rotemberg, Philipp Tschandl, M. Emre Celebi, Stephen Dusza, David Gutman, Brian Helba, Aadi Kalloo, Konstantinos Liopyris, Michael Marchetti, Harald Kittler, Allan Halpern: "Skin Lesion Analysis Toward Melanoma Detection 2018: A Challenge Hosted by the International Skin Imaging Collaboration (ISIC)", 2018; https://arxiv.org/abs/1902.03368

[4] Tschandl, P., Rosendahl, C. & Kittler, H. The HAM10000 dataset, a large collection of multi-source dermatoscopic images of common pigmented skin lesions. Sci. Data 5, 180161 DOI:10.1038/sdata.2018.161 (2018).

[5] Codella N, Cai J, Abedini M, Garnavi R, Halpern A, Smith JR. Deep Learning, Sparse Coding, and SVM for Melanoma Recognition in Dermoscopy Images. In: Machine Learning In Medical Imaging. Cham: Springer; 2015:118-126

[6] S.Mabrouk M, A.Sheha M, Sharawy A. Automatic Detection of Melanoma Skin Cancer using Texture Analysis. IJCA 2012 Mar 31;42(20):22-26.

[7] Hosny KM, Kassem MA, Foaud MM. Skin Cancer Classification using Deep Learning and Transfer Learning. 2018 Presented at: 9th Cairo International Biomedical Engineering Conference (CIBEC); December 20-22; Cairo, Egypt p. 90-93.

[8] Esteva A, Kuprel B, Novoa RA, Ko J, Swetter SM, Blau HM, et al. Dermatologist-level classification of skin cancer with deep neural networks. Nature 2017 Jan 25;542(7639):115-118.

[9] Navarrete-Dechent C, Dusza SW, Liopyris K, Marghoob AA, Halpern AC, Marchetti MA. Automated dermatological diagnosis: Hype or reality? J Invest Dermatol 2018 Oct; 138(10):2277-2279.

[10] Vogado, L. H., Veras, R. M., Araujo, F. H., Silva, R. R., & Aires, K. R. (2018). "Leukemia diagnosis in blood slides using transfer learning in CNNs and SVM for classification". Engineering Applications of Artificial Intelligence, 72, 415-42

[11] Krizhevsky A, Sutskever I, Hinton GE. Imagenet classification with deep convolutional neural networks. Communications of the ACM 2017;60(6):84-90.

[12] Dwivedi, A. K. (2018). "Artificial neural network model for effective cancer classification using microarray gene expression data". Neural Computing and Applications, 29(12), 1545-1554.
[13] Fan, H., Zhang, F., Xi, L., Li, Z., Liu, G., & Xu, Y. (2019). "LeukocyteMask: An automated localization and segmentation method for leukocyte in blood smear images using deep neural networks". Journal of biophotonics, 12(7), e201800488.
[14] Gao, Z., Wang, L., Zhou, L., & Zhang, J. (2016). "HEp-2 cell image classification with deep convolutional neural networks". IEEE Journal of biomedical and health informatics, 21(2), 416-428.
[15] He, K., Gkioxari, G., Dollar, P., & Girshick, R. (2017). "Mask R-CNN". In Proceedings of the IEEE international conference on computer vision (pp.2961-2969).
[16] Jiang, H., & Learned-Miller, E. (2017, May). "Face detection with the faster R-CNN". In 2017 12th IEEE International Conference on Automatic Face & Gesture Recognition (FG 2017) (pp. 650-657). IEEE.
[17] Kazemi, F., Najafabadi, T. A., & Araabi, B. N. (2016). "Automatic recognition of acute myelogenous leukemia in blood microscopic images using k-means clustering and support vector machine". Journal of medical signals and sensors, 6(3), 183.
[18] Kusunose, K., Abe, T., Haga, A., Fukuda, D., Yamada, H., Harada, M., & Sata, M. (2020). "A deep learning approach for assessment of regional wall motion abnormality from echocardiographic images". JACC: Cardiovascular Imaging, 13(2), 374-381.
[19] Krizhevsky A, Sutskever I, Hinton GE. ImageNet classification with deep convolutional neural networks. Adv Neural Inf Process Syst 2012 Jan:1-23.
[20] Peng, Y., Wang, N., Wang, Y., & Wang, M. (2019). "Segmentation of dermoscopy image using adversarial networks". Multimedia Tools and Applications, 78(8), 10965-10981.
[21] Ren, S., He, K., Girshick, R., & Sun, J. (2015). "Faster R-CNN: Towards real-time object detection with region proposal networks". In Advances in neural information processing systems (pp. 91-99).
[22] Sun, X., Wu, P., & Hoi, S. C. (2018). "Face detection using deep learning: An improved faster RCNN approach". Neurocomputing, 299, 42-50.
[23] Unver, H. M., & Ayan, E. (2019). "Skin lesion segmentation in dermoscopic images with combination of YOLO and grabcut algorithm". Diagnostics, 9(3), 7
[24] Han SS, Kim MS, Lim W, Park GH, Park I, Chang SE. Classification of the clinical images for benign and malignant cutaneous tumors using a deep learning algorithm. J Invest Dermatol 2018 Jul;138(7):1529-1538.
[25] Dorj U, Lee K, Choi J, Lee M. The skin cancer classification using deep convolutional neural network. Multimed Tools Appl 2018 Feb 22;77(8):9909-9924.