A MACHINE LEARNING APPROACH TO IDENTIFY STUDENTS AFFECTED IN BANGLADESH USING MOBILE PHONE

BY

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Master of Science in Computer Science and Engineering

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APPROVAL

This Thesis report titled **"A Machine Learning Approach to Identify Students Affected in Bangladesh Using Mobile Phone"** submitted by **"Md. Fojle Rabbi" ID: "211-25-006"** to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of M.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 19 January, 2022.

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I hereby declare that, this Thesis report paper has been done by me **Md. Fojle Rabbi, Id: 211-25-006** the department of Computer Science and Engineering, Daffodil International University under the supervision of **Dr. Sheak Rashed Haider Noori, Associate Professor and Associate Head, Department of CSE** Daffodil International University.

I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma. I also declare that, I collect information from the Books & Internet.

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ABSTRACT

The titled "A Machine Learning Approach to Identify Students Affected in Bangladesh Using Mobile Phone" the study focuses on a mobile device with powerful hardware a capability that enables a wide range of software, internet and multimedia functionality such as music, video, camera and gaming in one unit. It is certainly a very useful device for us. Today, most of the students are using smart phones for a large part of the day to fulfill their goals like education, gaming, watching videos, accessing social media, listening to music etc. Of these, the use of mobile phones is considered to be extremely helpful for learning and education. But when they spend hours on it, including other factors, it can prove to be very detrimental to them. They are exposed to some health risks. In addition, many of them are dependent on technology and are addicted to smart phones. Now, an effective way to identify these effects is to ask a burning question over time. I use the XGBoost classification here to categorize the effects on academic outcomes, health risks, family relationships and gender issues. This system can be used by mobile phones to identify the effects that students are experiencing.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Study of data classified content is important for exploring Artificial Intelligence (AI) &
Machine Learning Technique (MLT). Classifier is one of the most widely used
technology for solving various problems today. This method has become a popular
research topic among data analysis scientists and those who do research among corporate
individuals, as it is becoming increasingly essential. With so many new discoveries being
made every day in today's world of technology, I too am facing newer and newer
challenges. One of those challenges is data analysis also data management. It is possible
to handle huge amounts of data easily using artificial intelligence and taxonomy but it is
impossible to handle huge amounts of data by highly specialized human team to deal with
and solve it One of the ubiquitous technologies is mobile phone technology & it is
extremely difficult for researchers to understand the implications of using mobile phones
in our lives. This is very common but identifying them is a big problem as they vary from
one user to another. I use a method to solve the problem which is to know in advance
uses of mobile phone using time and then to decide which effect is appropriate and which
is not appropriate according to the list of reasons. Since mobile phones are now deeply
ingrained in our daily lives, long time users do not easily understand its effects in their
lives So I took some student's data and I analyzed them under some sections like effects
on health, study, socialization etc. I used a classified algorithm to identify who is more
affected than others by setting up a simple usual usage time from the data analysis. These
statistics will help Researcher and aware users make decision how to using mobile
phones in their proper interests.

1.2 Motivation

There are thousands of students in Bangladesh newly using new mobile phones regular day. Commonly this point of view mobile phones are the ideal resolution for socialization, security and privacy. Unluckily maximum of the student have no clear idea about the advantages or disadvantages of this device. However maximum of the student don't know how much time they are passing. The students are not worried that how much it might affect them. What's even more regrettable is that even parents or academician are decorated with too small fuzzy information on the subject. However when the students tried to control young people's habit, they can't come up with strong statistics and evidence. The aim of the present study, therefore, is to inquire into both the attitude of mobile phone users, with addicted, and It's advantages and disadvantages effects on the mental wellness and other related anxiety of students in schools, colleges and universities.

1.3 Rationale of the Study

Many attempts have been made to find out the effect of mobile use in the lives of students. Data classifier is the maximal effective and faithful method. It could be shown exact output without train information. This has made me eager in working with it.

Nowadays, I have seen the use of (MLT) Machine Learning Technique everywhere and I have also seen how the ability to predicted the impact of mobile phone usage is suitable a intense need for us. So I decided on this case data mining in (MLT) Machine Learning Technique analysis these effects.

1.4 Research Questions

- Does use of mobile phone impact academic result positively, negatively or neutrally?
- Does use of mobile phone impact the students of school, college or university students the most?

- Which health impact is founded maximum from using mobile phone - eye sight weakening, hearing deficiency, insomnia, phantom pocket syndrome, stress, headache, neck pain or back pain?

1.5 Expected Output

The expected output of the researching project is to make the system to help mobile users predict the impact the mobile usage on health, studies and socially relationships over time.

1.6 Report Layout

Chapter 1, Here I written reasons for select the title, how the project will fulfilled, the motivation of the project, the expected results, etc. are briefly discussed, Chapter no. 1 details the role of the project.

Chapter 2, The works shows that have been studied in this area and also findings, limitations are summarized and so are the research opportunities and challenges.

Chapter 3, The research methodology discuss about research topics and materials, data collection methods, statistical analysis and implementation requirements.

Chapter 4, Results of experiment and results of discussion experiment and descriptive analysis are described.

Chapter 5, Conclusion and References.

CHAPTER 2
BACKGROUND

2.1 Introduction

I discuss about research related data classifiers those related to data mining. Firstly I'll discussion about the work related to the previous one, After that the second portion I'll shown a summarized my study of the results or related of work and then I'll discussion about what the convenience & challenges that I have been confronted with this project.

2.2 Related Works

A study by Hui-Jen Yang1 and Yun-Long Lay2 found that college students mobile phone dependency and anxiety are factors that affect classification rates, habits and dependability on mobile phones. For 435 college students, a valid questionnaire received strong support for Taiwan's research model. They have proven that usage rates, habits and dependencies have separately influenced communication concerns of mobile phone. Use rates have a direct effect on habits. Usage rates and habits have a direct impact on mobile phone dependency, respectively. The Digital Audience Research Group found that more than 70% of students expressed concern about not having a mobile phone. Of these, 20% have excessive concern. Many people depend on mobile phones. Anxiety symptoms can occur if you do not have a mobile phone. [1]

Licopp and Heurin suggested that there is an immediate availability of mobile phone use in interpersonal relationships and that there is a high level of dependence among peer's when used by mobile phones often possible. Therefore, users will be concerned if the mobile phone is not in hand. Preoccupation is a negative attitude towards oneself and feeling inferior to others. This kind of concern is always concerned that others do not care about them and rely too much on private relationships. Most college students are anxious. Searle and Meara have applied research concepts to Bartholomew and Horowitz and found that busy people would be afraid to leave their mobile phones.

Based on the aforementioned theoretical and empirical evidence, I guess that practice is one of the factors affecting mobile phone dependency. As the habit becomes stronger, the reliance on mobile phones increases which also leads to communication worries. [2]

A research done by David North and at all from Ophoff University of Cape Town, South Africa on the topic Mobile phone used by South African university students works on the main causes of mobile phone used by South African university students. Data were collected from 362 participants using a survey using a quantitative method. These are available for socialization as well as privacy and security purposes. Usability and price are emerging as the top purchasing factors. The accused showed some signs of addiction on his mobile phone. Although by gender uses of mobile phone is varies, female students are increasingly interested in using mobile phones for safety and socialization with brands and trends, as well as for symptoms of addiction. [3]

2.3 Comparative Research and Summary

With extensive research on incidental papers and projects, I'll had decided to use XGBoost Classifier because,

• It has surpassed other proper aware implementations of boosting with gradient tree. Properly It works the data that I've used.

• XGBoost Classifier is the greatest proper data with among classification algorithm among others where output is 65% or more if the train data and labeling data is correct.

• It was easy to used convenient for further development.

• It is highly scalable and parallel It can be implemented quickly and usually performs other algorithms.

• Using the XGBoost classifier with proper training I got a great result and high accuracy.

I Using the XGBoost classification as a model for classification. I worked with XGBoost (Extreme_Gradient_Boosting). It's the gradient library of gradient boosting algorithms.

It has been optimized for modern data science problems and tools. It uses the techniques described with Boosting and wraps up in easy-to-use libraries. CoLab is broadly used, it is easy and quick to implement, I set my main goal with Google platform CoLab. I've used both of CoLab & Google's own GPU at runtime to get the appropriate output. I also use Drive for safety. The accuracy with the complete data set to get the results My goal is to create a system. It predict the effects of mobile phone use from different levels and to compare the accuracy with the complete data set to get the results. So I have choose the booster**,** silent and nthread parameters for manufacturing XGBoost parameters. I am working with result, health hazard, effect level of education and gender. I am wary of poor accuracy and output. Using dimensions, I found a range of good accuracy to find the best possible comparison.

2.4 Scope of the Problem

Major concentration of the research works is to create a system that can predict the impact of mobile users in other areas of students lives. In future, I'll try to introduce this system in mobile organization, educational institutions and youth club. I'll try to my system openly available to all. So anyone from Bangladesh or abroad like students and their parents or educators can use this system to predict whether they will get positive or negative results according to the time they use their mobile phone. This will make it easier for them to make decisions. Students in schools, colleges and universities will also be able to identify any problems they are facing due to excessive use of mobile phones for this system.

2.5 Challenges

1) Data Collection

There are many factors related to the impact of mobile usage, collection of data was a major hurdle for the research project. I start collecting data is local wise but it becomes very difficult because most users do not like the paperwork. I need more training information for more accuracy. So I decided to collect information online. Through survey questionnaires I was able to collect the results of the survey of more than one thousand students later.

2) Model Selection

Selection an Model is the most difficult part of the study. Research depends on the collection of data set and model selection for any success. If I choose the better model for better project there should be a positive result soon. Otherwise a bad choice can lead to failure as a sure truth. For this, I have test some research models with a search test data most suitable for my research project. Thorough the research I have understand the conclusion that the simplest and best algorithm is XGBoost classifier. I find out that it the classifier providers an easy to use library function. I realized the work of the classifier would be more opportune. Free virtual GPU I can work in Google CoLab, that Google provides I have final the model for use.

3) Data Labeling

Data label is one of the most vital parts of my working time. This is because it establish the code run faster and time consuming for data training. I have used the Python label encoder to label my data.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Here I will describe our research method. In addition, research project tools, data collection, research details Statistics will be analyzed and implemented discussing in those portion.

3.2 Research Subject and Instrumentation

I noticed the data is a research's key part of. Finding the ideal data, the ideal algorithm or example for my researches work is a very important part for a researcher. I also read to study related necessity research papers. After that I have to make some decisions:

1. What the information shall be gathered?
2. How to confirm that gathered information is appropriate?
3. How should every data be organizing?
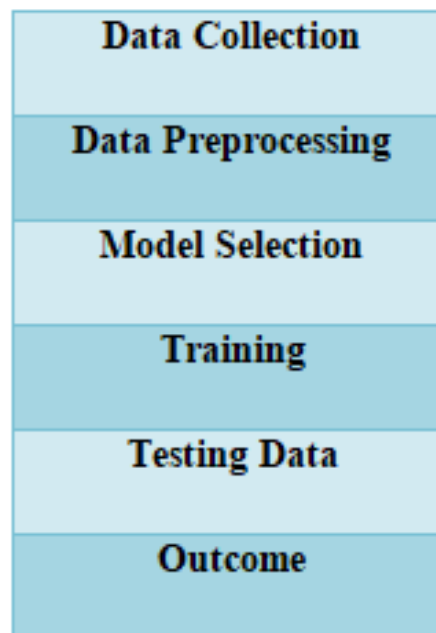4. How should every labeled data?

3.3 Methodology

Figure 3.1: Methodology

3.4 Data Collection

In this survey I have use some a questions form like a dataset. These data are selected based on the impact of mobile uses on a academy students results, condition of health, social relevance and psychology condition. I've collect information from various kind of students from various fields of study. From school-college-diploma & universities students and via online.

3.5 Data Pre-processing

Data pre-processing is the initial stage of dataset processing. Usually raw datasets aren't capable to performance activities & produce the expectation output, data needs to be pre-processed. It's considered vital portion of the experiment. At the stage, I collect exceed 1000 dataset for used and usage of smart phone's are mentioned separately here. Gender & users control capability were also collected as separate entry. The questionnaires contains 21 independent data for analysis through technique of machine learning.
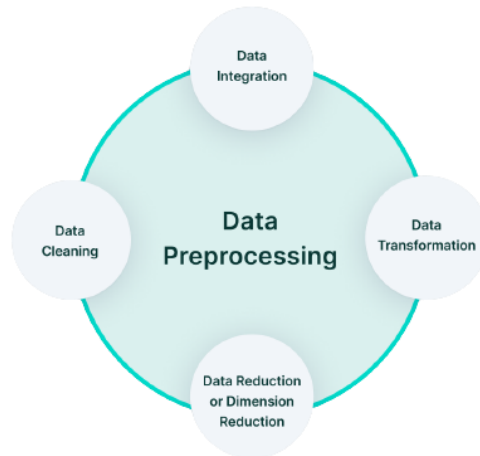

Figure 3.2: Data Pre-processing

3.6 Data Organizing

Data organizing I saved my data between two directory before I test my data and also trained desired data.. Also, I used the validation folder to verify trained information. I also use legality folder to check the validity of the trained data. Then I've creating sub directory on the test and trained the directory on health risks, impact on social relationships, and effect the results on academic and so on.

3.7 Data Storing

I stored all of dataset on my google drive cause it's create my work easy. I could used that stored data from online in my project I have converted whole of the dataset as a (.csv) extension files. After that I store the dataset in my drive in (google drive) So as not to lose my data. After that I follow some coding simple step or code could use those data in my project work,

3.8 Model Selection

I select XGBoost classifier for my research. Because XGBoost classifier gives me expected accuracy. I used two other classifiers One KNN (K-Nearest Neighbor) second one is Naive Bayes. But those classifiers didn't show me accurate accuracy also those classifications are not best for my datasets. So I reject that classification and I am choosing XGBoost classifier. For choosing different cause when I call that algorithm automatically called and then it ensemble classifier other classifier such as Logistic regression, Decision tree, Random forest. XGBoost is the major model for working with standard tabular dataset. This classifier algorithm is the simplest and better for me. I've find out the offer an the library is easy to useable, I realized that classification working might be much advantageous. I can easily work with google platform colaboratory, because Google provides it a freely for virtual GPU. So I selected this model because of my needs.

3.9 Train and Test data

I gather dataset from various platform of students, I saw that some students are given interesting types of required dataset. Then I modified all the data from the collected data and generate a data set. So I wonder if the data set works completely or not. And whether the machine learning algorithm for my data set works properly. Then I am publishing my modified data set and various researchers are researching my collecting of data set. So I give two part of data test and training. First of all I trained my collected and modified

data set with XGBoost classifier and then I tasted my collected and modified dataset with the classifier of XGBoost. Here I have trained the data of 80% and 20% the data of tested data And I have gotten the data set to work out completely.

3.10 Outcome

After the training session and testing session of my collected and modified data set I execute the data with my selected classifier of XGBoost. Then I've gotten a 65% accuracy after that I found what type students are major affected by mobile phone uses. What is affected area that is showing below-
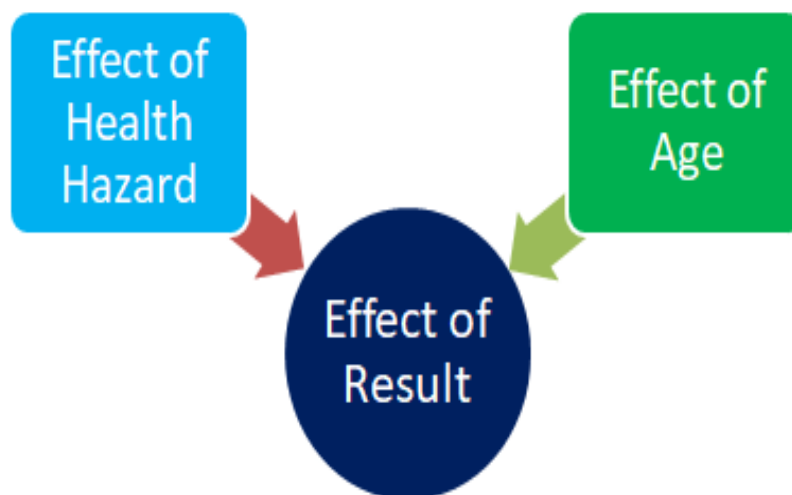

Figure 3.3: Effect of students

3.11 Statistic Analysis

The total amount of data I surveyed is over 1,011 which I collect but Later pre-process I've got 937 data.

THE FIGURE OF COUNT INFORMATION IS BELOW:

Table 3.1: Data amount	
Students type	**Amount**
University students	400
College students	212
Diploma students	309
School students	90

3.12 Implementation Requirements

•Python 3.9

Python version 3.9. Python is a programming/coding language software. Majority peoples using research related works also developing issues. It is a particularly recommended programming language for Artificial Intelligence basis activity & Its excellently popularity the newly developers. It's too easier to learning also realize easily.

•Google CoLab

Colaboratory is totally open platform of Python programming language open source distributor. I can be work here online platform through my google chrome browser alongside Jupiter notebook. Advantage of using Google Colaboratory online virtual GPU access provides us free to use.

•Hardware & Software Requirements

1. Operating System Windows 7/8/10
2. Google Chrome Web Browser
3. 4GB Hard Disk or above
4. 4GB RAM or above

CHAPTER 4
EXPERIMENT RESULTS AND DISCUSSION

4.1 Experimental Setup

In order to implement my model also my code, I first gathered the information. The process as follows:

✓ Since I've been working on predicting academic outcomes, health risks, social relationships, and the impact of gender on mobile phone use, I've collected information of student data from a variety of educational sectors.

✓ The largest portion of my time allotted for research projects has been spent on surveying and gathering data of students from schools, colleges and universities.

✓ I collected my required data using through online platform of Google Forms.

✓ When I labeled from the data collected data then those became faultless for further use.

✓ After that the labeling process I've converted the labeling data to a numeric type.

✓ Then I have normalized the data from labeling and finalized the data that I can start my desired works.

✓ After that my data was ready for preprocessing.

4.2. Model Summary

I have to use the sequential processing of data files model with parameters like as data, labeling, silent, weight, feature name & types, missing, nthread I use this-parameters in my working research. These have given me great accuracy in my research works. In fact researching related other works I have seen that the best results are obtained with the model using all the parameters. After that I took the advantage to optimized with the model with good accuracy and output from the model.

4.3 Experimental Results & Analysis

I executed my dataset to make the model from the input data provided. The analysis has given me my expected output from my calculation. Then, I compared time and pass columns with academic results data which the output results are 82% accuracy. After that, a compared within health hazard versus time has yielded an average the output results are 82% accuracy. Also, the age comparison with the time & pass columns is 82% perfect.

4.4 Effect of Result

When I execute the dataset to work I get an graph for the CGPA versus time 82% accuracy. The graph is as follows.
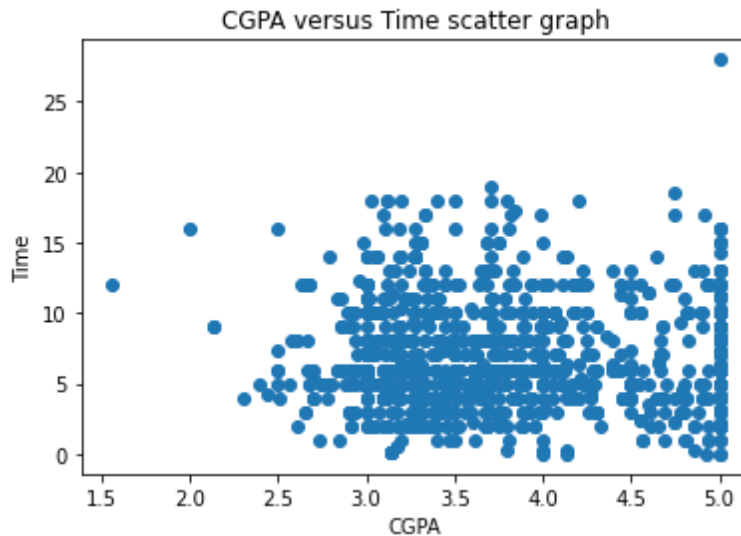

Figure 4.1: The graph of CGPA versus Time

All of my results have been converted into GPA 5.00. Then I takes the results of 3 ranges. Which the range result GPA <3.00 = is bad, result greater than equal 3.00 and results less than 4.50 = is good, result> = 4.50 = is the best,. Now Graph from which student's 2-12 hours using mobile phones the GPA is around 3.00 to 4.40. 70% of student's are in this range. Here I can said that the result has been good. Again I see that some of the students are using mobile phones in that range where the result is GPA 4.50 to 5.00. However, the count of the student's was minor person or less. After that I got which of the student's (Male & Female) are using mobile phone for 0-5 hours in a day, their result is GPA 4.50

to 5.00. Observing the data of various types of students, I saw that this types of students are using mobile phones only for learning & knowledge based studies where only 25 percent of the student's are under this range. Which the students 10-15 hours or more use the mobile phones their result is between GPA 2.50 to 3.75 I got 5% are the students in this range. By analyzing student data I can find that while using the mobile phone, more time is spent on watching videos, listening to music, gaming and spending too much time on social media while using mobile phones can result in poor results.

4.5 Effect of Health Hazard

Here's something health hazard categorization I selected in these study; Neck pain & Back pain, Insomnia, Hearing Impairment, Headaches, Stress, Phantom Pocket Syndrome, Eye problems & more. Now I compare each health risk over time and find out what kind of problem is being encountered. I make a new dataset for every health hazard. Now I want to discuss all about of health hazard. Health Hazard versus Time have resulted in 82% accuracy.

4.6 Insomnia

Here I comparison insomnia versus time. To do this, I create a new dataset from my raw dataset. Then my desired dataset I run by Python in Google CoLab and I got a graph. In this part I use the XGBoost classifier and I get a 70% accuracy. The following graph is given.
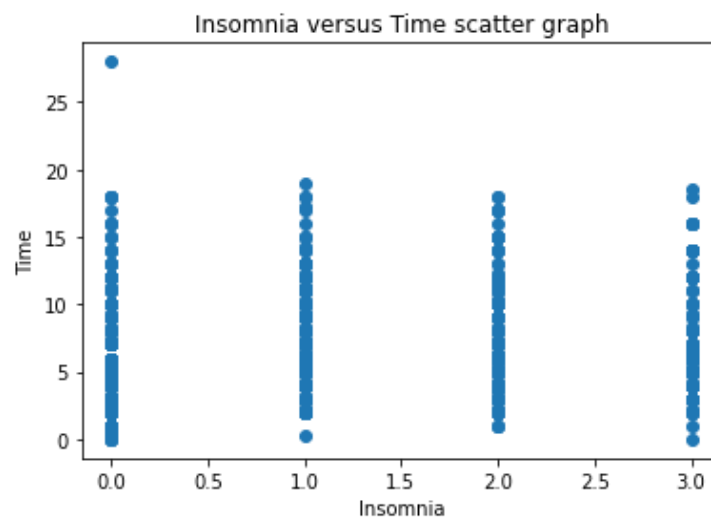

Figure 4.2: The graph of Insomnia versus Time

This dataset was a string when I collected data from students for the effects of insomnia. Then I convert my collected data to a numeric type for example not at all = is 0, several days is = 1, most days is = 2, and daily is = 3. From graphs I get datasets about 33% of student's experience insomnia and they rarely change using mobile phones. Then 32% of student's affected are insomnia for several days experiences even though they are using mobile phones for 2 to 8 hours, some of students have to face this problem by using mobile phones more. Students using phones for 4 hours to 11 hours 24% of students experience insomnia most days Students who used mobile phones 7 hours to 14 hours 11% of face insomnia. However, some of the student's using for a lengthy time but they aren't suffer from insomnia. The amount of these is too less.

4.7 Neck and Back Pain

Now I compared with time neck & back pain. I generate a dataset for insomnia. Then execute the desired dataset using in Google colaboratory & I have got a graph of scatter. The XGBoost classifier again I use. and achieve 62% accuracy. The graph is-
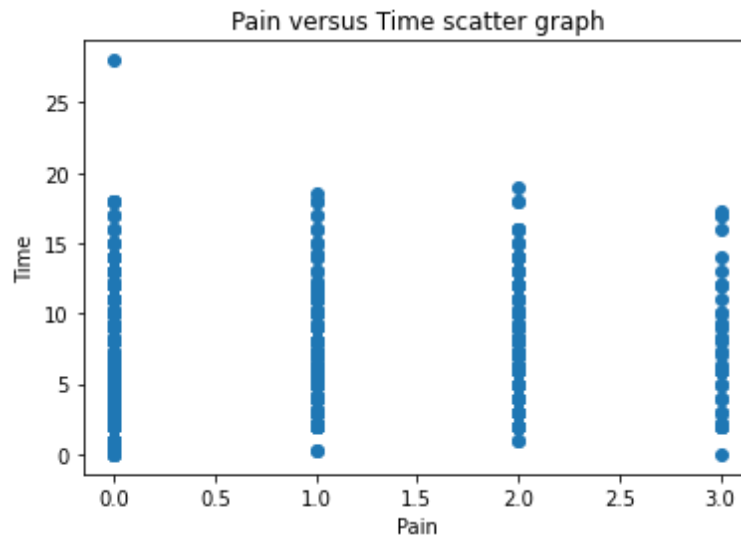

Figure 4.3: Pain versus Time scatter graph

I gather string data. Firstly I convert from numeric all the string data. As not at all=0, several days = 1, most days = 2, and daily = 3. Then I got datasets from the graphs.

Students using mobile phone for 2-5 hours, 49% of have no back and neck pain. Again I see that 26% of student's experiencing insomnia for several of days even though they are used mobile phones for 3-9 hours, they facing this problem because some students are using mobile phones more than that. Students using mobile phone for 4-12 hours, 20% of have no back and neck pain. And Students using mobile phone for 7-14 hours, 5% of have no back and neck pain. However, I also found that some students have been using mobile phones for a long time, but they do not have pain in the neck and back. The amount of these is very low.

4.8 Headache

I compared with time & headache. I generate a dataset for headache. Then I execute the desired dataset using in Google colaboratory & I have got a graph of scatter. Here again I use XGBoost classifier. Here I got 70%. accuracy.
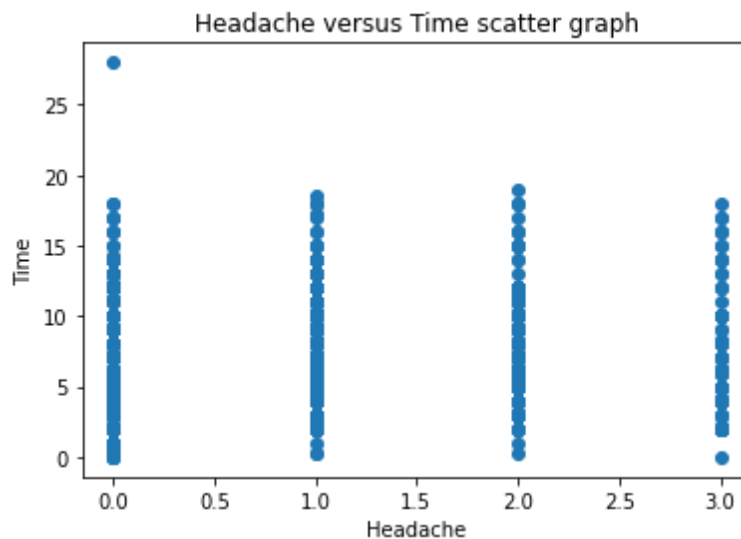

Figure 4.4: Headache versus Time scatter graph

I gather string data. Firstly I convert from numeric all the string data. Such as not at all = 0, Several days=1, Most of days = 2, and Everyday = 3 Then execute the desired dataset using in Google CoLab and I have got a (scatter) graph. Student using mobile phone for

2-7 hours 35% student are facing headache from the data of by not at all. Then Student using mobile phone for 4-10 hours 34% student are facing headache from the data of several days. Student using mobile phone for 3-12 hours 23% student are facing headache from the data of most of days. The accuracy of Student using mobile phone for 2-15 hours 8% students are facing back & neck pain from the data of every day. However, I have collected information from some other students that they use mobile phones for a lengthy time but their don't have neck and back of pain but the amount is less.

4.9 Hearing Impact

Now I comparison the effect of hearing respect to time. I create a new data set for the effect of hearing Then I execute the dataset used Python in Google colaboratory and I got a graph of (scatter). Then I again used XGBoost classifier and I have gotten 60% accuracy.
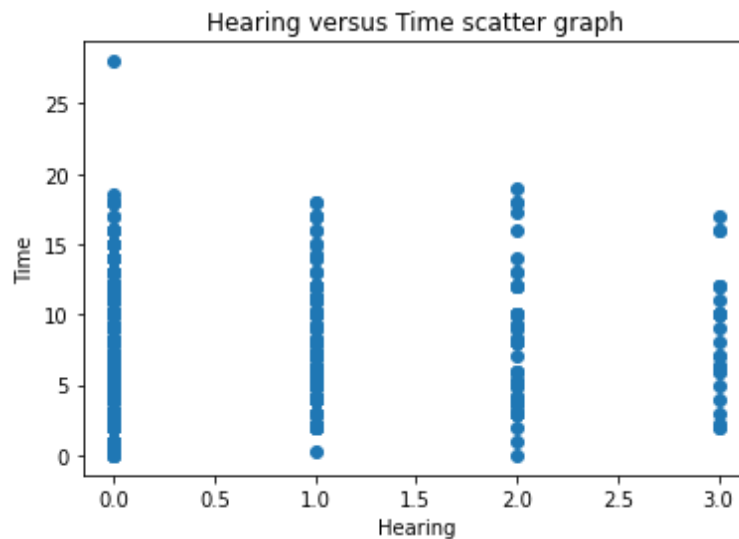

Figure 4.5: The graph of Hearing impact versus Time

I gather string data. Firstly I convert from numeric all the string data. Such as not at all = 0, Several days=1, Most of days = 2, and Everyday = 3 Then execute the desired dataset using in Google CoLab and I have got a (scatter) graph. Student using mobile phone for 2 to 6 hours 75% student are facing hearing from the data of by not at all. Then Student using mobile phone for 3 to 9 hours 17% student are facing hearing from the data of several days. Student using mobile phone for 4 to 10 hours 5% student are facing hearing

from the data of most of days. The accuracy of Student using mobile phone for 6 to 10 hours 3% students are facing hearing problem from the data of every day. However, I have collected information from some other students that they use mobile phones for a long time but they do not facing hearing problem but their amount is too less.

4.10 Phantom Pocket Syndrome

I compared time with phantom pocket syndrome. I generate dataset for phantom pocket symptoms. Then I execute the desired dataset using in Google colaboratory and I have got a graph of (scatter). Now I used the classifier of XGBoost. Here I got 70%. accuracy is given below.
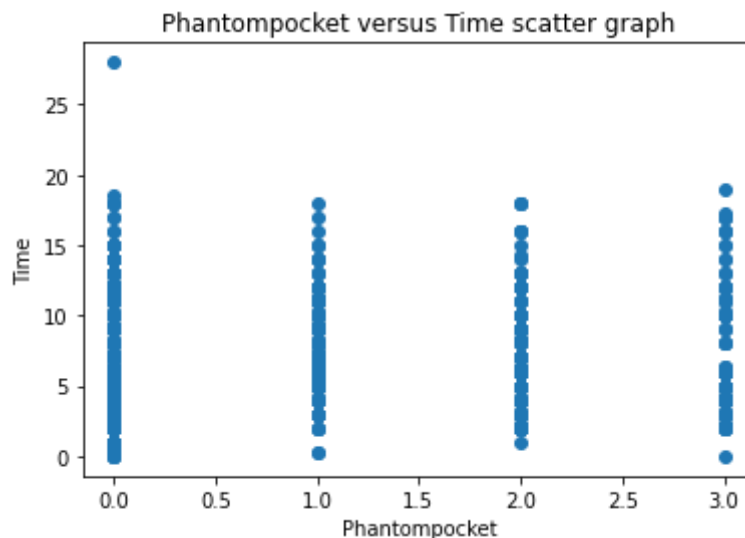

Figure 4.6: The graph of Phantom pocket syndrome versus Time

I gather string data. Firstly I convert from numeric all the string data. Such as not at all = 0, Several days=1, Most of days = 2, and Everyday = 3 Then execute the desired dataset using in Google CoLab and I have got a (scatter) graph. Student using mobile phone for 2 to 6 hours 59% student are facing phantom pocket syndrome from the data of by not at all. Then Student using mobile phone for 2 to 8 hours 17% students faced phantom pocket syndrome from the data several of days. Student using mobilephone for 4 to 10 hours 14% student are facing phantom pocket syndrome from the data of most of days. The accuracy of Student using mobile phone for 6 to 14 hours 10% students are facing

phantom pocket symptoms problem from the data of every day. However, I have collected information from some other students that they use mobile phones for a lengthy times but students don't facing phantom pocket symptoms problem but their amount is very low.

4.11 Stress

I compared with time & stress. I generate a dataset for stress. Then I execute the desired dataset using Google colaboratory and I have got graph of (scatter). Now I used the classifier of XGBoost. Here I got 68%. accuracy Graph is given below.
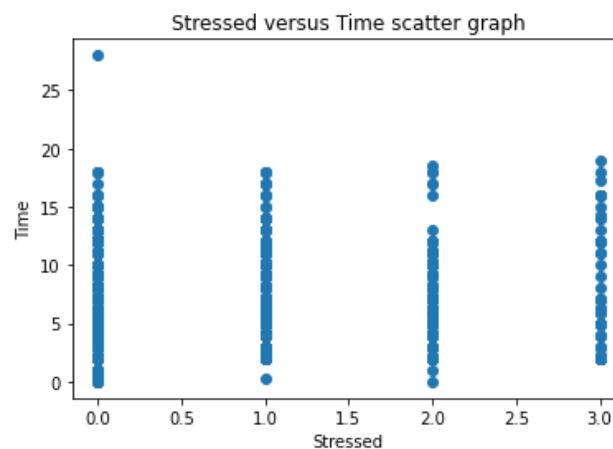

Figure 4.7: The graph of Stressed versus Time

I gather string type data. Firstly I converted numeric from all the string types data. The value is not at all value is 0, Several days value is 1, Most of days value is 2, Everyday value is 3 Then execute the desired dataset using in Google CoLab and I have got a (scatter) graph. Student using mobile phone for 5 to 6 hours 57% student are facing stress from the data of by not at all. Then Student using mobile phone for 5 to 10 hours 23% student are facing stress from the data of several days. Student using mobile phone for 4 to 10 hours 14% students are facing stress from the data of most of days. The accuracy of Student using mobile phone for 2 to 12 hours 6% students are facing stress problem from the data of every day. However, I have collected information from some other students that they use mobile phones for a lengthy times but students don't facing stress problems but their amount is too less.

4.12 Eye

I compared with time & eye. I generate a dataset for eye. Then I execute the desired dataset using Google colaboratory also I have got a graph of (scatter). Now I used the classifier of XGBoost. Here I got 82% accuracy:
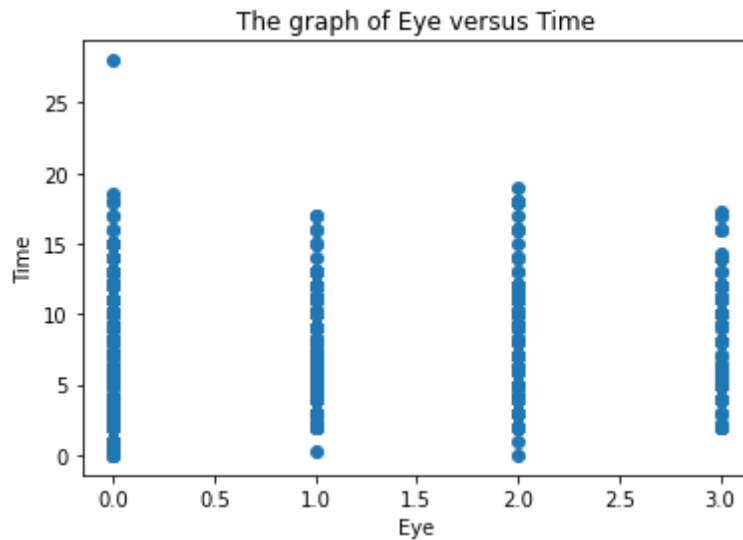

Figure 4.8: The graph of Eye versus Time

I gather string types data. Firstly I numeric from all the string types data. The value is not at all value is 0, Several days value is 1, Most of days value is 2, Everyday value is 3 Then execute the desired dataset using in Google CoLab and I have got a (scatter) graph. Student using mobile phone for 4 to 6 hours 52% student are facing eye problem from the data of by not at all. Then Student using mobile phone for 2 to 10 hours 20% student are facing eye problem from the data of several days. Student using mobile phone for 4 to 10 hours 17% student's faced problem of eye from the data most of day. The accuracy of Student using mobile phone for 5 to 14 hours 10% students are facing eye problem from the data of every day. However, I have collected information from some other students that they use mobile phones for a lengthy of time but students don't faced problem of eye but their amount is too less.

4.13 Effect of Age

I have noticed that which types of students are most influenced used mobile phones. Firstly I choose different types of students who are using mobile phone for 5 hours or more. Likely students of SSC, students of HSC, students of diploma also higher education students. Age with Time and Pass column is 82% accuracy.

I compare the dataset with pass & time columns graph in (scatter). After that I execute the desired dataset using in Google CoLab and I have got a (scatter) graph.
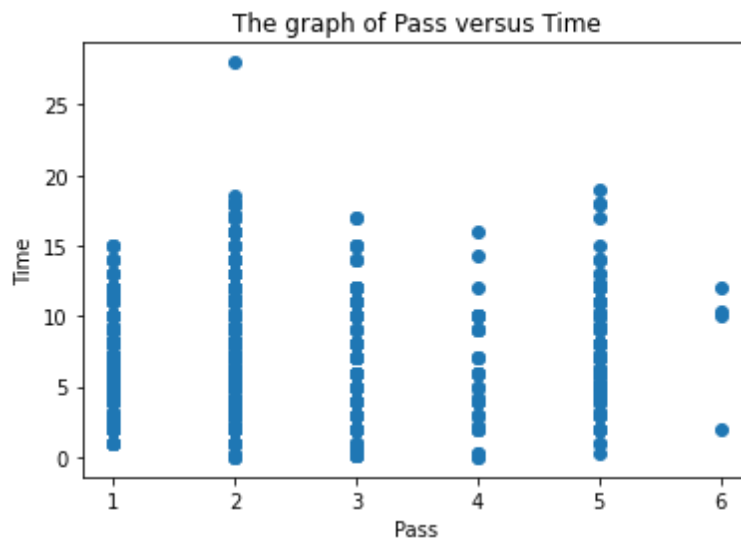

Figure 4.9: The graph of Pass versus Time

From the graph represents x-axis is the pass and y-axis is the time. Firstly I converted numeric from the string data. Here x-axis 1 represents student of SSC, 2 represents student of HSC, 3 represents student of Diploma, 4 represents student of JSC, 5 represents student of higher education and 6 represents student of PSC. Here I talk about all Education students. First of all I choose a range for mobile phone use then I choose the top from 0 to 5 and 5 or up under this range. Then I find 0 to 5 hours students of HSC students are using mobile phone, where CGPA is 3.95 and the student's used mobile phone 2.88 hours and 5 hours where CGPA 3.88 and they 10.2 hours where used mobile phone for 0 to 5 hours SSC students are using mobile phones where CGPA is 4.03 and they are using mobile phone 2.96 hours. Students of SSC 5 hours+ who are used mobile phones around CGPA 3.95 and they are using mobile phones for 8.63 hours. I convert to a CGPA 5.00 scale for students of diploma and all higher education results. Then I see

that students of diploma are using mobile phones for 0 to 5 hours where CGPA is 4.09 and they are using mobile phones for an average of 2.88 hours. Some students of diploma are using mobile phone for 5 hours where CGPA 4.02 and using 6.97 hours. After that I find that the level of higher education students are using mobile phones in less than 5 hours, where CGPA is around 3.49 and they are using mobile phones for 2.86 hours. I find some students are using mobile phone for 5 hours where CGPA is 3.3 and students used mobile phone for 9.49 hour. From the analysis I have come to the conclusion that students who use mobile phones for a long time have bad results and they are facing various problems.

4.14 Discussion

I changed my dataset and mode from the review I realized that the classifier can be used for whole types of comparative datasets too predicts it is exact. I have succeeded in defined the 82% of accuracy effect prediction. The accuracy could be compared CGPA, behaviors, health hazard & socials relationships, ages & levels of study, and effects on genders. It prepare advantageous too compared the model with that to found the results exactly.

CHAPTER 5

SUMMARY AND IMPLICATION FOR FUTURE RESEARCH

5.1 Summary

I created predict that research project students academic outcomes, students health, students behavior in terms of social relationships and the time of use, and the impact of mobile phone use on their gender as opposed to the level of study. XGBoost classifier is the best data classifier algorithm for this research project that's why I have collected students information datasets from various schools students, colleges students, diploma students, universities students and online surveys. Then, I cautiously used the method of data pre-processing rules that I can perfect the data from the junk data. The required datasets need to be train up so that they can fulfill the purpose of data management. In this research process some of the datasets tend to be trained while others are tested.

5.2 Discussion and Conclusion

Nowadays world is one of the fastest growing technologies. That condition is simultaneously created positively both progress & negatively effects. Bigdata handling was too complicated problems in the technical area. Its necessity to new and innovative process and devising. The world associated ICT the use of mobile phones have happen inevitable from much aspects. However, impact it's having on lives, specifically among young people, is not a blessing in disguise. However, those effects have become more difficult to identify because of the number of users and the factors involved. So that easy method and skilled method that I've created could be resolve that vital problem through machine learning.

5.3 Recommendations

A lot of improvement initiatives maybe implemented through bigdata analysis to find the effects uses mobile phone. Machine learning (MLT) is a very major part of the future artificial intelligence (AI) of this earth. Advances in solving our complex problems using machine learning techniques for today's innovation development systems. So technicians & authority's necessity be look into that it's most necessary part of learning of machine this could changed the whole idea related the previous understanding about the machine.

5.4 Scope for Further Career

- ✓ It will be working on more data to create research more effective.
- ✓ This will include more section data to broaden research areas.
- ✓ This will create an open source work stage with massive amount of data.

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APPENDICES

RESEARCH REFLECTION

During the course of the project, I encountered various problems. But three of them were major problems. One is to select the best algorithm, create survey questions and the other is to collect data. I tried many ways to solve our problem before working with XGBoost algorithm and I have unsuccessful to get the best output. I encounter some problems when I get to create survey questions. One of them is creating questions and sorting out questions. To gather information, I encountered great trouble. Because collecting information locally is time wasted and difficult for students. So, I need to gather some information from online sources. And after many days and many attempts and hard work I have succeeded.

RESEARCH REFLECTION

Questions of the data collection below.

STUDENTS AFFECTED IN BANGLADESH BY USING MOBILE PHONE

Please fill up the table……

Gender	Age	CGPA	Height	Weight
☐ Male ☐ Female	☐ Year ☐ Month	☐ (In scale 5.00) ☐ (In scale 4.00)	☐ Fit ☐ Inch	☐ Kg

1. What is your last pass exam?
   ☐ PSC ☐ JSC ☐ SSC ☐ HSC/Diploma ☐ B.Sc /BBA/Honors
   ☐ M.Sc/MBA/Master's
2. Are you using smart phone?
   ☐ Yes ☐ No
3. Do you use internet?
   ☐ Yes ☐ No
4. What do you use to access the internet most with?
   ☐ Mobile ☐ Laptop /PC ☐ Tab ☐ other device
5. How much time you using mobile phone daily?
   ☐ Hours
6. Which time you mostly use mobile phone?
   ☐ Day ☐ Night (after 10 pm) ☐ Night (before 10 pm)
7. Do you think internet is helpful for learning?
   ☐ Yes ☐ No
8. What do you think, which procedure is better for your learning?
   - Online learning with device ☐
   - Study in alone with reading note/books ☐
   - Group study ☐
   - Discussion with friends through online ☐
9. When you use mobile phone how much time you spend for-------
   - Learning ☐ hours
   - Social media ☐ hours
   - Gaming ☐ hours
   - Chatting ☐ hours
   - Talking ☐ hours
   - Watching video ☐ hours
   - Others ☐ hours

10. Can you control yourself to going another site while learning in mobile phone?
    I can control ☐ Can't control me ☐
11. If you can't control, then which sites attack you more-----
    ☐ Facebook/Social media ☐ Gamming ☐ Chatting ☐ YouTube
12. ☐ concentrate in your study after using long time mobile phone?
    ☐ Yes ☐ No
13. What do you feel after using long time mobile phone?
    ☐ Interesting ☐ satisfied ☐ Depressed ☐ Upset ☐ Unhealthy

14. Which physical problem do you face after using long time mobile phone?
- You feel insomnia--- (lack of sleep)
  - [ ] Several days [ ] Most of days [ ] Every day Not at all
- Neck and back pain
  - [ ] Several days [ ] Most of days [ ] Every day [ ] Not at all
- Headache
  - [ ] Several days [ ] Most of days [ ] Every day [ ] Not at all
- Hearing impairing
  - [ ] Several days [ ] Most of days [ ] Every day [ ] Not at all
- Stress
  - [ ] Several days [ ] Most of days [ ] Every day [ ] Not at all
- Phantom pocket syndrome (phone ring confusion arising)
  - [ ] Several days [ ] Most of days [ ] Every day [ ] Not at all
- Eyes problems
  - [ ] Several days [ ] Most of days [ ] Every day [ ] Not at all
- Others

15. Are you using spectacles?
[ ] Yes [ ] No

If is your answer is yes, how much power of your spectacles----
[ ] Left eye [ ] Right eye

16. How much time do you spend with your family members?
[ ] Hours [ ] minutes

17. Which meal do you eat with your family members?
[ ] Breakfast [ ] Lunch [ ] Dinner

18. Do you use mobile phone----
- When you eat along [ ] Yes [ ] No
- Eat with your family members [ ] Yes [ ] No
- Study time [ ] Yes [ ] No
- Class time [ ] Yes [ ] No
- Family get together [ ] Yes [ ] No
- Meet with friends [ ] Yes [ ] No

19. How many times do you communicate with your family member in a day?
Average [ ] Times

20. After using long time mobile your behavior is-
[ ] Angry [ ] out of control [ ] Sad [ ] Lonely [ ] Normal

[ ] Regretful for time waste

21. So what's your opinion mobile phone is-
[ ] Helpful [ ] Disturbing [ ] Time consuming [ ] Unhealthy

Bangladesh_by_Using_Mobile_Phone_Fojle_Rabbi,_Id_211-25-006.pdf