

## **AN ANALYTICAL STUDY ON THE USEFULNESS OF PRICELESS GOVERNMENT LAPTOPS**

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### **ABSTRACT**

Education in every sense is one of the fundamental factors of development. Education enriches the people's understanding of themselves and of the world. It improves the quality of their lives and leads to broad social benefits to individuals and society. Recognizing the significance of education in the development process and the economic imperative of "Quality of Education for all", the state Government has been encouraging students through various welfare schemes. One of the best schemes of state Government, which improves the technical skills of students', is "Providing free laptops to school and college students". This paper is designed to analyse the usefulness, activities, feel and the suggestions of students regarding the free laptops, based on their data. The concept of data mining is used here to make an analytical study on the Priceless Government laptops issued by the Government of Tamil Nadu.

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### **INTRODUCTION**

Data mining is an important paradigm for educational assessment [6]. It is the computational process of discovering patterns in large data sets. The overall goal of the data mining process is to extract information from a data set and transform it into an understandable structure for further use [7]. The process of data mining is also called as Knowledge Discovery in Databases abbreviated as KDD, is commonly defined with the following stages [8][9]:

1. Developing an understanding of the application domain.
  - The relevant prior knowledge
  - The goals of the end-user
2. Creating a target data set: selecting a data set, or focusing on subset of variables, or data samples, on which discovery is to be performed.
3. Data cleaning and preprocessing.
  - Removal of noise and outliers
  - Collecting necessary information to model or account for noise
  - Strategies for handling missing data fields
  - Accounting for time sequence information and known changes
4. Data reduction and projection
  - Finding useful features to represent the data depending on the goal of the task.
  - Using dimensionally reduction or transformation methods to reduce the effective number of variables under consideration or to find invariant representations or the data.
5. Choosing the data mining task
  - Deciding whether the goal of the KDD process is classification, regression, clustering etc.
6. Choosing the data mining algorithm(s).
  - Selecting method(s) to be used for searching for patterns in the data.
  - Deciding which models and parameters may be appropriate.
  - Matching a particular data mining method with the overall criteria of the KDD process.
7. Data mining.

- Mining of data
- Visualization of the mined data

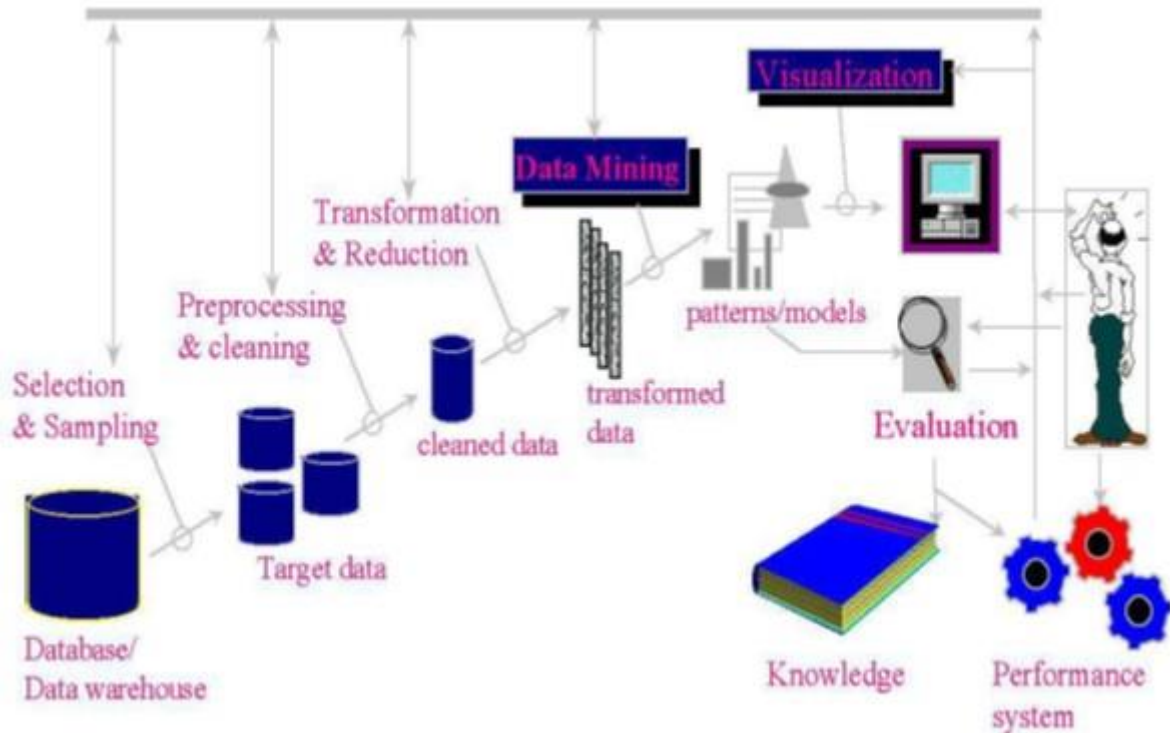


Figure.1: Stages of Knowledge Discovery in Databases (KDD)

### OBJECTIVES OF THE STUDY

The study presented under this survey aims to analyze the following:

- To analyze the usage preference of the students. The usage is classified as
  - Academic
  - Non-academic and
  - Both the purpose
- To analyse the likeness of using laptop with / without internet connection.
- To find out the often activities of the students with the laptop.
- To understand the students and parents feel of owing / using a laptop.
- To predict the most preferred brand of the students.
- To provide the suggestions made by the students in improving the model of the laptop.
- To portray the additional features required by the students.
- To detect the willingness of students in buying the laptop.
- To analyze their usage of laptop in college and under staff supervision.
- And at last to conclude the usefulness of Priceless Government laptop issued by the Government of Tamil Nadu.

### LITERATURE REVIEW

Over the past decade, rapid technological advances have sparked interest in utilizing laptops as an instruction tool to improve student learning. As per the article of Deccan chronicle, the survey done by the private company has revealed that eight out of 10 students seemed to be happy with the quality of the free laptop provided by the Tamil Nadu Government. The survey also state that, “free laptops improves technical skills of students” [1]. The Indian higher education system is presently facing several challenges [3]. Various welfare schemes are to be implemented by the state Government and it has to be continued till the people become self sufficient [4]. The clearest areas in which the laptop program has had a positive impact are in improving computer skills, increasing access to

educational resources, boosting student motivation and interest in school/college and enhancing interaction among students and teachers [2]. The quality of the schemes and whether the current products meet the user needs should also determine by the study [5]. Considering these as the basement, a questionnaire is prepared to analyze the exact usage, feel and the utilization of the device for multiple/ various purposes. Based on the analysis (data collected from the students), the following predictions are made.

### THE ANALYTICAL STUDY

Education acts an integrative force in society, imparting values that posters social position and national identity. Recognizing the importance of education the state Government has placed an unprecedented focus in expansion of education, significantly improving the quality of education imparted and ensuring that educational opportunities are available to all segments of the society [10]. To enhance the knowledge of students, the scheme of free laptops is introduced. So far, various surveys are conducted in various departments such as commerce and economics to analyze the quality of this scheme. Implementing this in the field of computer science is the first of its kind. The concept of data mining is used to perform this analysis. WEKA 3.7, one of the prominent tools of data mining is used for this study. It provides a collection of machine learning algorithms for data mining tasks. WEKA contains tools for data preprocessing, classification, association and clustering rules and visualization [11]. To perform the analysis the test data was collected from Dr. Ambedkar Government Arts College, Chennai from various courses. All students of all the departments are encouraged to participate in the survey. At least two percent of all the classes are covered. It contains nearly 27 attributes of various data types. Nearly 500 students are participated in the survey. Out of these participants 53% are male students and 47% are female students. The analyses made among them are as follows.

### Results and discussions

#### *Availability of computers, Self-Usage and Possession*

The major objective of providing free laptops to student's scheme is, every student must have their own laptop. So there is also a need to analyse whether this is the first laptop or they previously have laptop/ computer at home. 84% of the students who participated in the survey reported that they do not have computers at home before they got this laptop, and 16% of the students have computers at home.

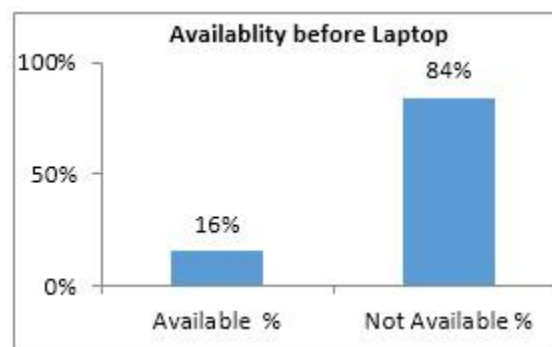


Figure. 2: Availability of computers before free laptops

Coming to self-usage, 91% of the students can access their laptop themselves and the rest 9% need other's help to access. Among survey respondents, 67% of the students are in possession of their laptops and the balance 33% are not in possession due to various reasons. The reason stated by them majorly fall under the following categories: Repair (30%), Sold (2%), and Stolen (1%).

#### *Usage Purpose*

The main aim of this welfare scheme is to enhance the academic knowledge of the students. So, it is very much important to predict the percentage of their academic activities with the laptop. As per as our survey, 16% of the students solely use their laptops for academic purpose and 3% of them use for non-academic purpose. The major category (78% of the students) falls on the third criteria, which is using their laptops for both academic and non-academic purposes. There is also 3% of students reported that they do not use their laptops for any of these purposes, it just remain in their homes as other show piece.

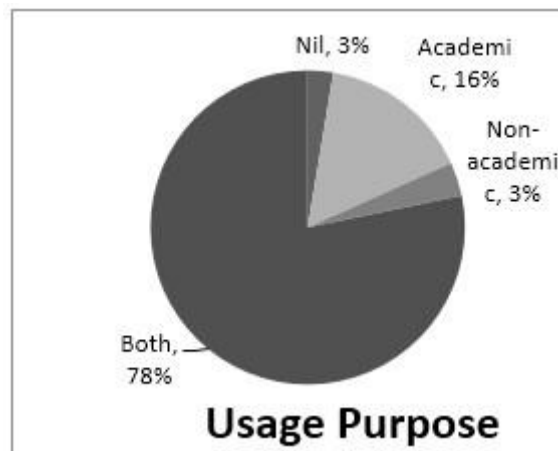


Figure. 3: Usage Purpose of the students

**Duration of usage and Parent’s Feel**

Nowadays we see many students sit in front of laptops for long time. Hence, there is also a need to analyze their usage time and their parents’ feel when they sit in front of laptops for longer time. According to our survey, 66% of the students use them for 1 to 2 hrs, 16% use them for 3 to 4 hrs and the rest 17% use more than 4 hrs.

When the students are asked to answer about their parents feel regarding their usage, they reported that 45% of them have no idea about their parents’ feel and 25% of the students’ parents feel worried and 19% feel happy and the balance 10% of the parents feel proud.

**Provided and Preferred Brand**

Of the survey conducted among the students, the brand provided to students in large number is Hasee (46%), next Lenovo (19%) and the third position is occupied by HP (15%), the other brand ratios are Acer 13%, Wipro (6%), HCL (1%) and Elcot (0.5%). Among the students who have got the laptops, 48% of them are happy with their provided brand, they do not prefer any other brand. 27% of them preferred HP and 14% of them preferred Lenovo and the rest preferred various brands such as Dell (2%), Apple (5%), Samsung (1%), Sony (1%), and Hasee (1%).

**Specific purpose**

After the prediction of usage purpose (academic/ non-academic), there exist a need to find out the specific purpose of using laptops by the students. The purposes are classified as follows: 19% of the students use their laptop as study material, 16% use them for playing games, a single percent use for hearing songs and 10% uses them to watch movies and the major category, 54% of them use them for all the activities they are like to do such as playing games, watching movies, hearing songs, taking study materials etc.

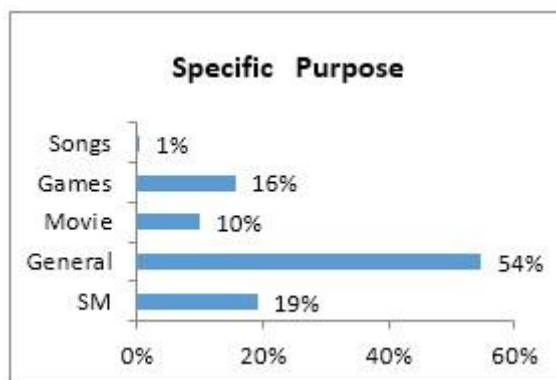
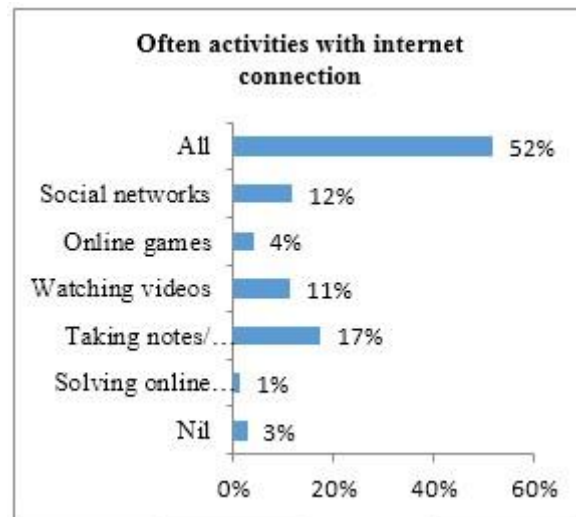


Figure.4: Specific Purpose of Usage by the students

### *Internet connection and it's often activities*

The world has come under one roof through internet. Various information's can be received, sent, shared, retrieved using World Wide Web. Though it is very obvious that every one of us like to use our laptop with internet connection, there is also a necessity to find the percentage of students who like to use their laptop with internet connection and the rest 17% are not.



*Figure. 5: Often activities with internet connection*

Since we conclude that more number of students likes to work with internet connection, there may also a question arise, what will they often do when they are connected with internet? Though millions of activities can be carried out, the students' most frequent and most preferred activity is examined. Hence, the following result. Maximum number of students (52%) reported that they do not stick to any particular activity: they do all the activities which can be possibly carried out through internet.

### *Laptop use in college and under staff supervision*

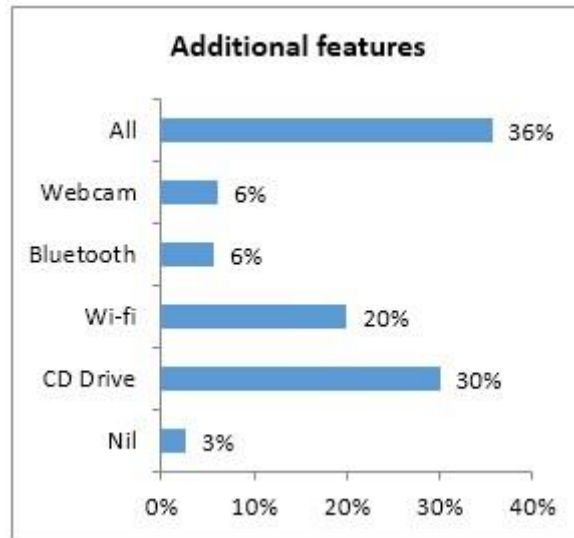
As per the statement of survey respondents, the usage of laptop in college and under staff supervision is very minimum. Only 11% of the survey respondents use their laptops in colleges and the rest 89% do not use in colleges. The reasons stated by them for not using laptops in colleges and under staff supervision are denial of permission by the staffs, threat of losing their laptop and do not involve much of classroom practices. It is also revealed that 52% of students have their syllabus copy in their laptops and 48% are do not.

### *Additional features and unwanted features*

Though the Government provides the laptop as best as possible, students have their own suggestion in improving the model by including some additional features and excluding some unwanted features. The additional features added by the students are as follows...

CD Drive	: 30%
Wi-Fi	: 20%
Bluetooth	: 6%
Webcam	: 6%

Many of the students (36%) suggested all of the above features and the rest 3% of students are satisfied with the provided model and reported that they do not have any suggestion regarding the additional features.

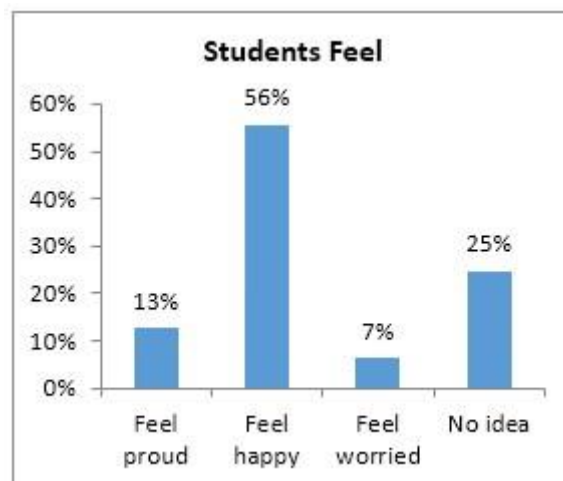


*Figure. 6: Additional features required by the student*

Considering the unwanted features, 66% of the survey respondents don't have any suggestions in excluding any of the features presented already.

**Students' Feel**

The survey included an open ended question asking students about their feel when they carry laptop with them. Few more questions are also raised to understand the pulse of the students. First their opinion about giving laptop to students other than computer science students is questioned. 86% of them feel it is useful, 13% reported that they have no idea and the balance 1% feels it is not needed. Next the likeness about selling their laptop is analyzed. 60% of the survey respondents reported they don't like to sell their laptop. Third the students are asked whether the laptop has become an essential part of their life. Hopefully, 71% of them reported as it is essential.



*Figure.7: Students feel about Government Laptops*

Now considering the feel 69% of the students feel proud and happy with the Priceless Government laptop scheme provided by the Government of Tamil Nadu.

**CONCLUSION**

This study finds that there is convincing evidence that the laptop program has contributed much to improvement of students' performance. The laptops have given to Government / Government aided school and college students, who are basically from a poor family. So, it is a gift for those who cannot afford the price of owing laptops. The

laptop provided by the Government is not only useful for that one particular person but also to the whole family, either the sister or brother of him/her can make use of that laptop for their school projects and also for their further studies. It improves the technical skills of both school and college students. Though it has certain disadvantages (distraction of students in the classroom, using laptop for non-academic purposes more than academic activities like playing games and watching movies), the scheme's objective of enhancing students' knowledge is achieved. As per as our survey, we analyzed that the issue of Priceless Government laptop scheme is truly a boon to all students.

### **FUTURE ENHANCEMENTS**

The study is further extended by building a Data mining model using agent paradigm. Clustering techniques are also included. Comparative study can also be conducted between laptops provided by different state governments.

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