Analysis and Prediction of students behaviour by using classification as an data mining techniques

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Abstract

- Students opting engineering as their disciple is **increasing rapidly**. But due to various factors and inappropriate primary education in India **dropout rates are high**.
- With the help of **data mining techniques we can predict the performance of students** in terms of grades and dropout for a subject.
- There are various data mining methods such as **classification, clustering and association.**
- Classification is supervised learning method that **builds a model to classify a data item** into a particular class label.The aim of classification is **to predict the future outcome based on the current available data.**

- data analysis task as an Classification
  E.g.
  A bank loan officer wants to analyze the data in order to know which customer (loan applicant) are risky or which are safe.
  In this e.g a model or classifier is constructed to predict the categorical labels which are **risky or safe** for loan application data.

- We have the following four goals concerned with Educational Data Mining (EDM):
  - **Predicting** student's future learning behaviour
  - **Discovering** or **Improving** Educational domain needs
  - Studying the **factors affecting Educational support**
  - Providing the **Advanced scientific knowledge parameters** to the Educational Institutes

Problem In Existing Environment

- Education is the key to prosperity of any nation.
- Unfortunately due to **lack of quality education at primary level**, socio- economic, psychological and other diverse factors, students **drop out rates** are high and performance is low.
- Everyone talks about the problem, no one is thinking about the solution.
- Everyone is blaming to schools, colleges.

Solution Of The Problem

- To **improve the quality of engineering** graduates such cases of dropout and poor performance must be monitored proactively.
- Developement of an data mining tool which helps to finds the behaviour of student using various Classification algorithms.
- This help us to get insight of data and reach to meaningful conclusion.

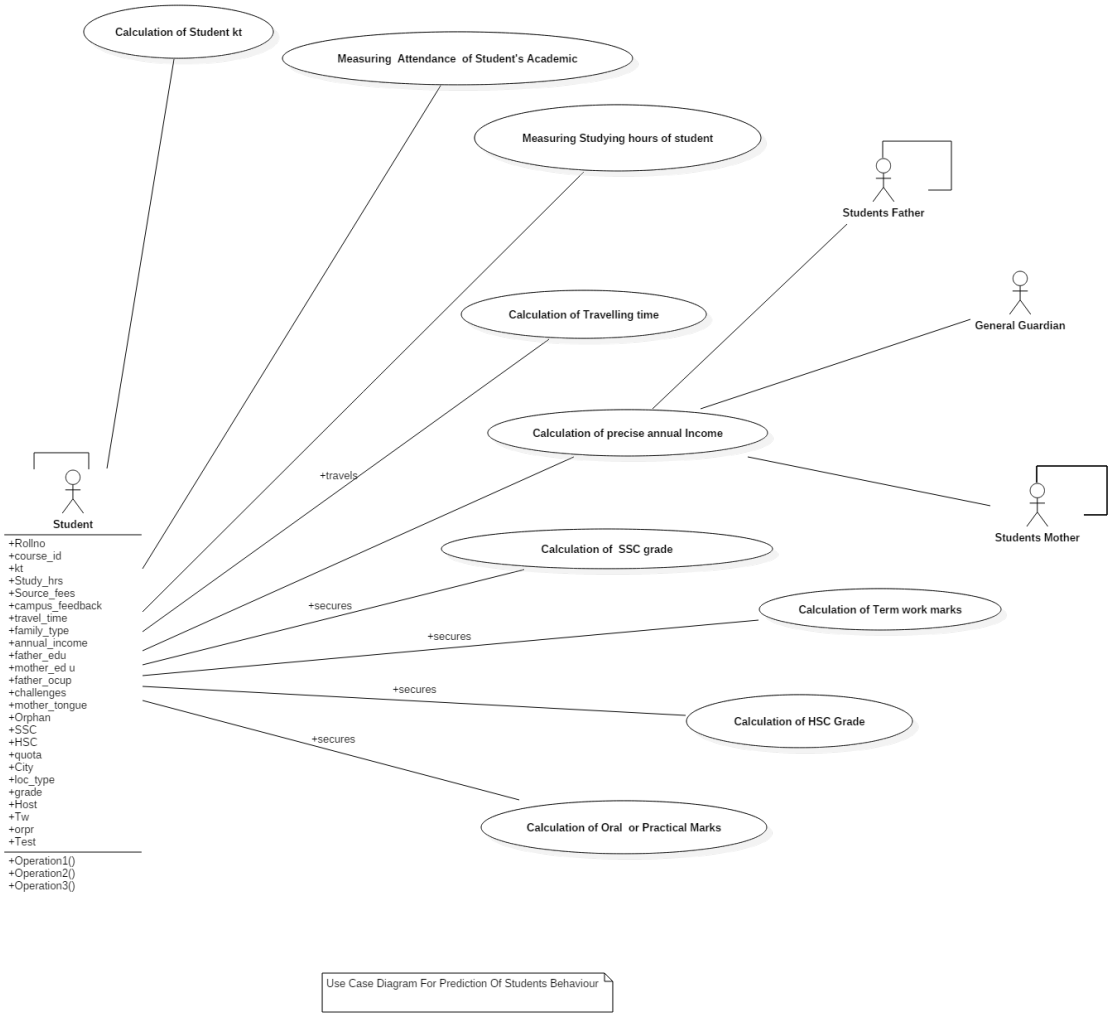
Methodology

- With the help of **classification of data mining techniques** we can predict the performance of students in terms of grades and dropout for a subject.
- In this project we are going to develop new technique by overcoming the disadvantages of present Classification Techniques such as **Random Forest, Naive Bayes and JRip** etc.
- We are **not going to concern any psychological factors** such as family issues, cast, gender, health, family type, etc in this project.

Modelling

- In this Phase we have modelled an Use case,Sequence Diagram and Class Diagram.

Modelling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Measuring Attendance of Student's Academic
Measuring Studying hours of student
Students Father
Calculation of Travelling time
General Guardian
Calculation of precise annual Income
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Student
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+HSC
+quota
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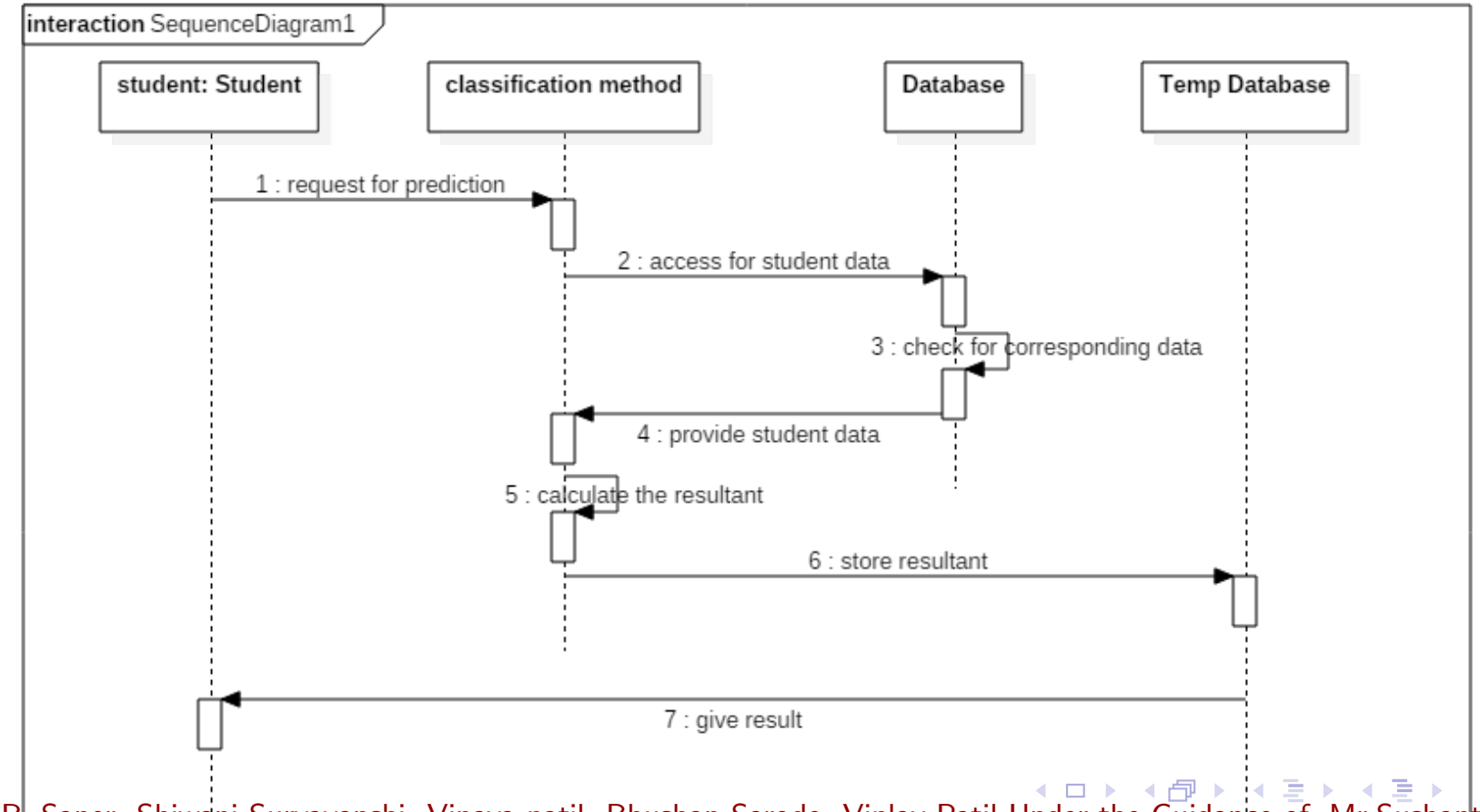
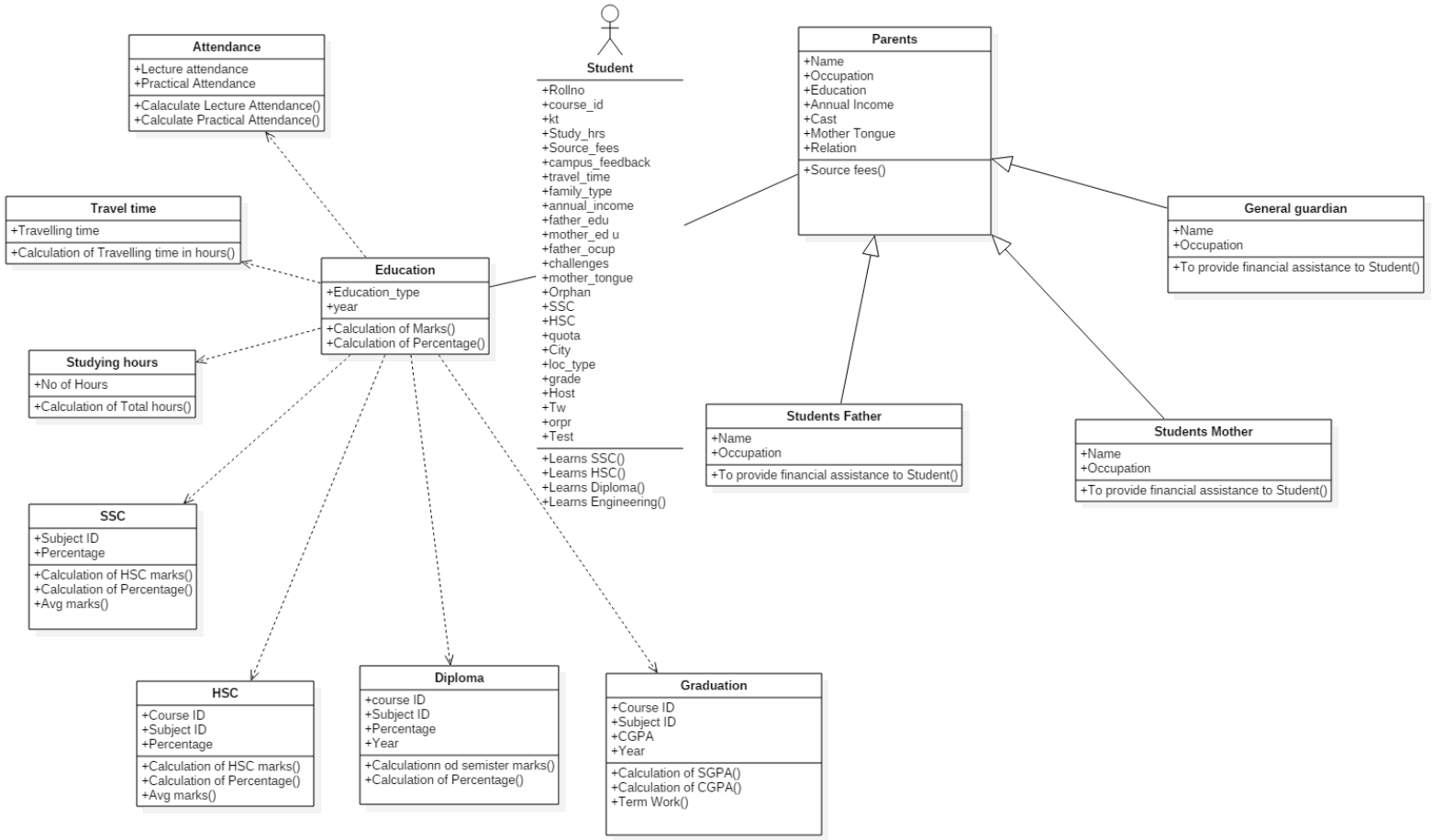
+Test
+Operation1()
+Operation2()
+Operation3()
Students Mother
Calculation of SSC grade
+secures
Calculation of Term work marks
+secures
+secures
Calculation of HSC Grade
+secures
Calculation of Oral or Practical Marks
Use Case Diagram For Prediction Of Students Behaviour

Modelling

Figure: Sequence Diagram



Modelling



Class Diagram For Prediction Of Students Behaviour

Advantages

- Students will be able to know **their own area of interest**
- It will also be helpful for teachers as well as parents **To improve the weak point** of the student.
- It will help **to Improve the Result** of student and Colleges.
- It will help in Improving the student not only in studies but also in **extra curricular activies.**

Conclusion

- Student **dropout rates** in India are high.
- Data mining techniques can be able to predict the performance of students
- There is a need of Developing a tool of Data mining.
- Random Forest, Naive Bayes and JRip is found to be the Accurate Classification methods we are going to choose.

Reference

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