



Predicting IB Subject Grade

General Assembly DSIF 2

Capstone Project December 2021

“RESPECT YOUR PARENTS. THEY
PASSED SCHOOL WITHOUT GOOGLE”



01

General Overview

WHY TAKE IB DIPLOMA?

Students who study the IB Diploma cope well with transitioning to the university as they have developed investigative and research skills through the Extended Essay and critical thinking skills through Theory of Knowledge



INTRODUCTION TO IB DIPLOMA PROGRAMME

- For students aged 16 to 19
- programme aims to develop students who have excellent breadth and depth of knowledge (students who flourish physically, intellectually, emotionally and ethically)



Curriculum Overview



6 Subject Groups

Studies in language and literature
Language acquisition
Individuals and societies
Sciences
Mathematics
The arts



DP Core

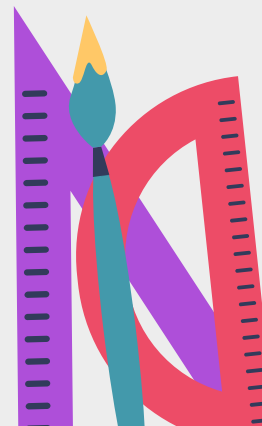
Theory of knowledge (TOK),
Creativity, activity, service (CAS)
Extended essay (EE).



Exams

Assessments

External and internal
assessment



HOW ARE STUDENTS AWARDED WITH SUBJECT GRADE?

Higher Level

Standard Level

- IB awards same number of points for HL and SL subjects (Grade descriptors: ranging from Grade 1 to 7)
- HL and SL subjects differ in scope but are assessed against the same descriptors
- HL candidates are expected to demonstrate the various elements of the grade descriptors across a greater body of knowledge, understanding and skills
- In 1 of the grade descriptors, teachers will be asked for predicted grades for each subject, to support Higher Education applications and to send to the IB just before students sit final exams.
- Predicted grades are the professional judgement of the teacher, at that moment in time, of how the student will perform in the final formal assessment.



MAX SCORE :

For IB Diploma Programme

45

42 from across 6 subjects

3 bonus from TOK, EE





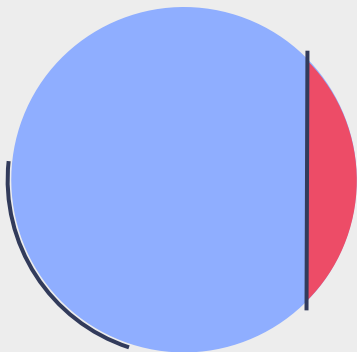
02

Problem Statement

PROBLEM VS. SOLUTION

Problem

As the predicted grades given to the students are from a teacher's professional point of view, the school wants to eliminate human biasness



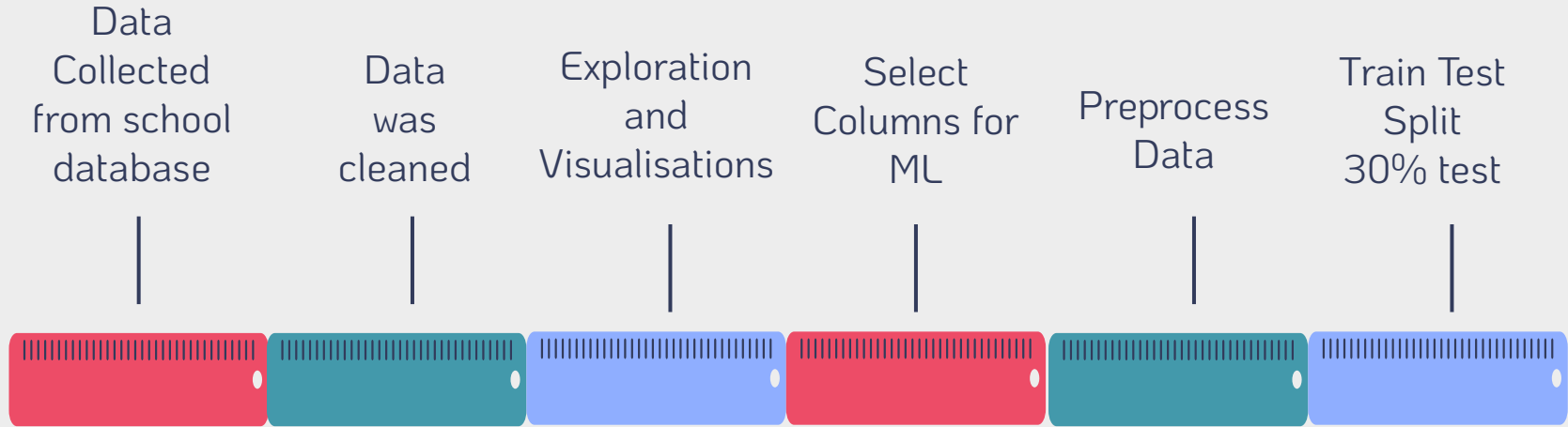
Solution

Create a ML model in predicting the student's IB subject grade and compare it to their actual final IB subject grade to see how well the ML model works.

Students can input in their grades gotten from their markbook rubrics to get their predicted grade.



PROCESS



“BLAMING TEACHERS FOR THE
PROBLEMS IN EDUCATION IS LIKE
BLAMING DOCTORS FOR PEOPLE
GETTING SICK”

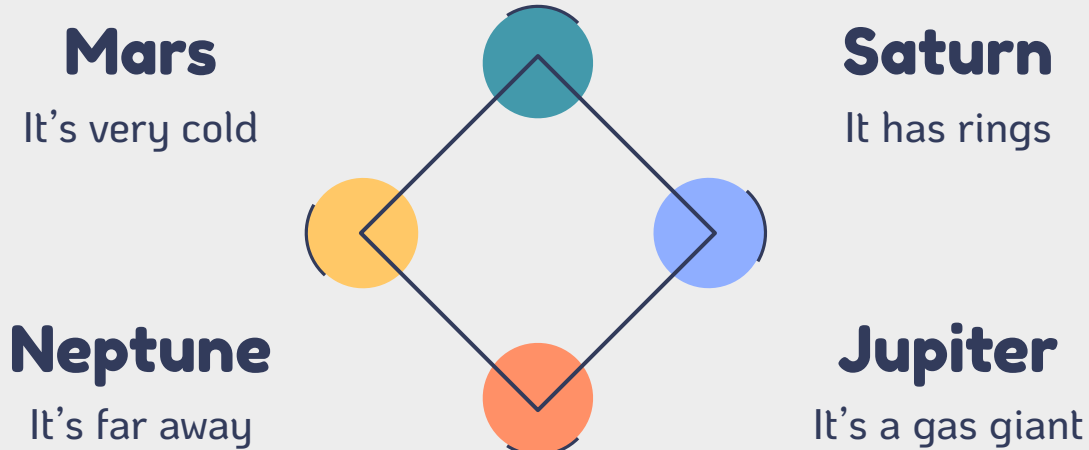




03

Data Exploration

DATA OVERVIEW



DATA VISUALISATION

-



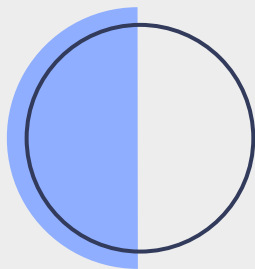
04

Modelling

Results

	Linear Reg. Ridge	Linear Reg. Lasso	RandomForest Regressor
Train Test	0.9358746 0.9360413	0.9341888 0.936768	0.9880954 0.9604987
RMSE	0.317564	0.307547	0.051685
R2	0.936041	0.936768	0.960499

Top Coefficients



CONCLUSION & FUTURE WORKS

Best Model: RandomForestRegressor due to lowest RMSE results and slightly higher R2 score compared to other 2 ML models



THANK
YOU



Siti Alawiyah

Linked In:

Github:



Predicting IB Subject Grade

General Assembly DSIF 2

Capstone Project December 2021

“RESPECT YOUR PARENTS. THEY
PASSED SCHOOL WITHOUT GOOGLE”



01

General Overview

WHY TAKE IB DIPLOMA?

Students who study the IB Diploma cope well with transitioning to the university as they have developed investigative and research skills through the Extended Essay and critical thinking skills through Theory of Knowledge



INTRODUCTION TO IB DIPLOMA PROGRAMME

- For students aged 16 to 19
- programme aims to develop students who have excellent breadth and depth of knowledge (students who flourish physically, intellectually, emotionally and ethically)



Curriculum Overview



6 Subject Groups

Studies in language and literature
Language acquisition
Individuals and societies
Sciences
Mathematics
The arts



DP Core

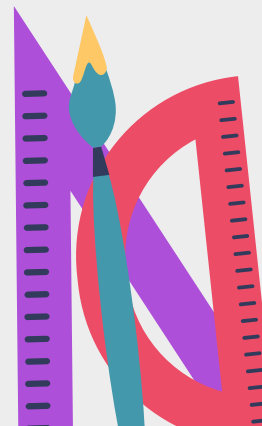
Theory of knowledge (TOK),
Creativity, activity, service (CAS)
Extended essay (EE).



Exams

Assessments

External and internal
assessment



HOW ARE STUDENTS AWARDED WITH SUBJECT GRADE?

Higher Level

Standard Level

- IB awards same number of points for HL and SL subjects (Grade descriptors: ranging from Grade 1 to 7)
- HL and SL subjects differ in scope but are assessed against the same descriptors
- HL candidates are expected to demonstrate the various elements of the grade descriptors across a greater body of knowledge, understanding and skills
- In 1 of the grade descriptors, teachers will be asked for predicted grades for each subject, to support Higher Education applications and to send to the IB just before students sit final exams.
- Predicted grades are the professional judgement of the teacher, at that moment in time, of how the student will perform in the final formal assessment.



MAX SCORE :

For IB Diploma Programme

45

42 from across 6 subjects

3 bonus from TOK, EE





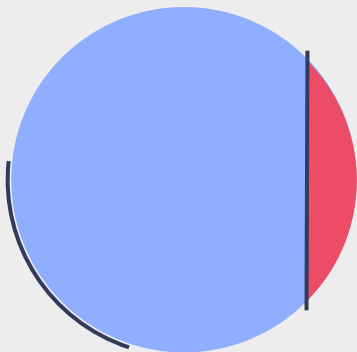
02

Problem Statement

PROBLEM VS. SOLUTION

Problem

As the predicted grades given to the students are from a teacher's professional point of view, the school wants to eliminate human biasness



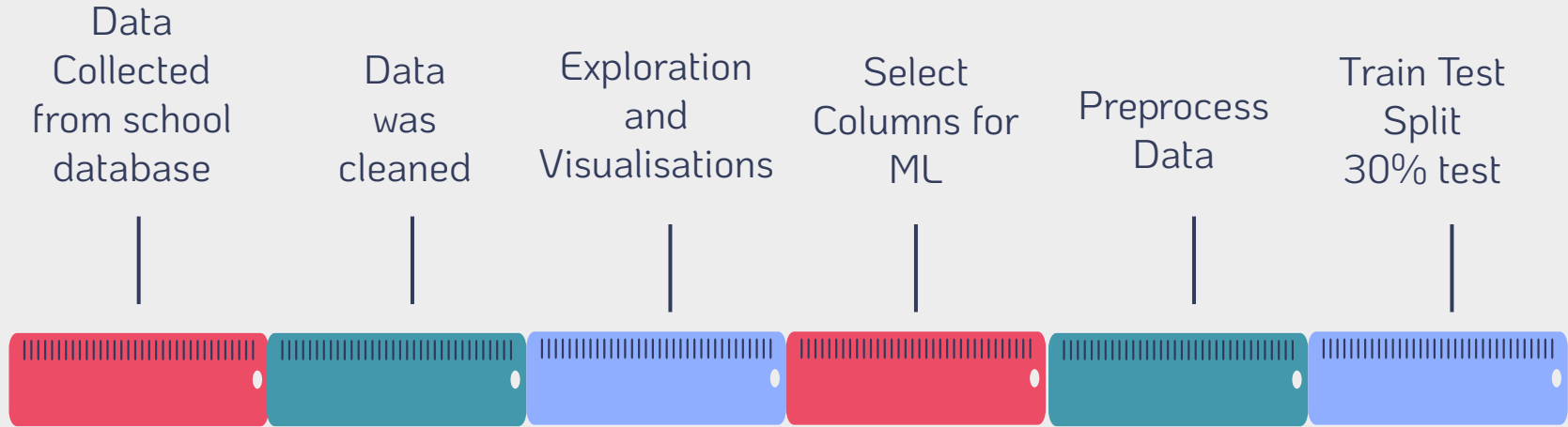
Solution

Create a ML model in predicting the student's IB subject grade and compare it to their actual final IB subject grade to see how well the ML model works.

Students can input in their grades gotten from their markbook rubrics to get their predicted grade.



PROCESS



“BLAMING TEACHERS FOR THE
PROBLEMS IN EDUCATION IS LIKE
BLAMING DOCTORS FOR PEOPLE
GETTING SICK”

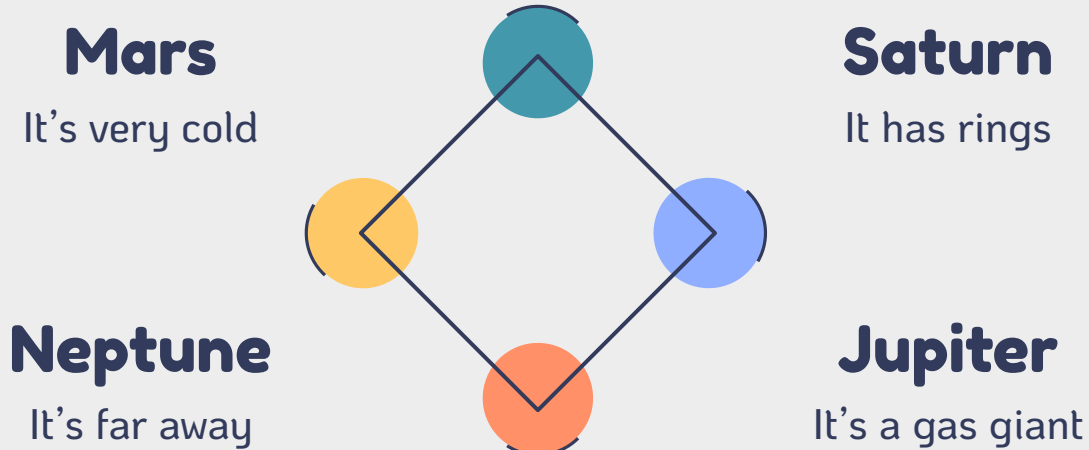




03

Data Exploration

DATA OVERVIEW



DATA VISUALISATION

-



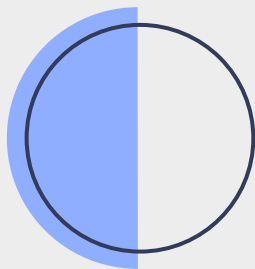
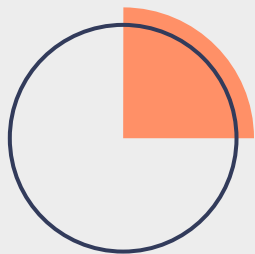
04

Modelling

Results

	Linear Reg. Ridge	Linear Reg. Lasso	RandomForest Regressor
Train Test	0.9358746 0.9360413	0.9341888 0.936768	0.9880954 0.9604987
RMSE	0.317564	0.307547	0.051685
R2	0.936041	0.936768	0.960499

Top Coefficients



CONCLUSION & FUTURE WORKS

Best Model: RandomForestRegressor due to lowest RMSE results and slightly higher R2 score compared to other 2 ML models



THANK
YOU



Siti Alawiyah

Linked In:

Github: