



# Predicting IB Subject Grade

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General Assembly DSIF 2

“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

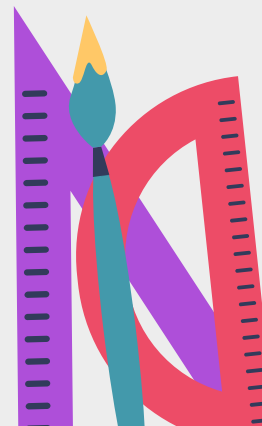
Theory of knowledge (TOK),  
Creativity, activity, service (CAS)  
Extended essay (EE).



## 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







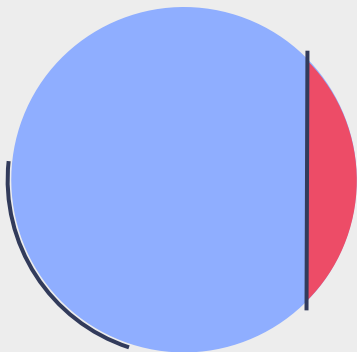
# 02

## 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



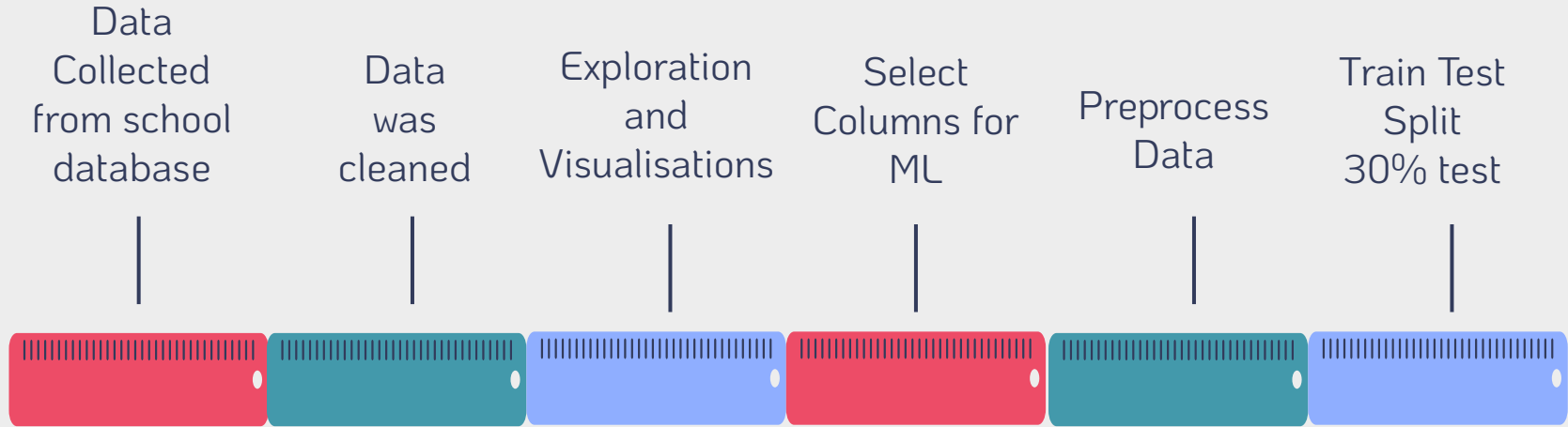
## Solution

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”

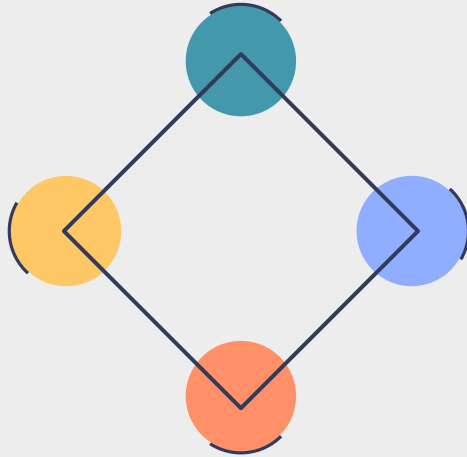




**03**

## **Data Exploration**

# DATA OVERVIEW



# DATA VISUALISATION

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# 04

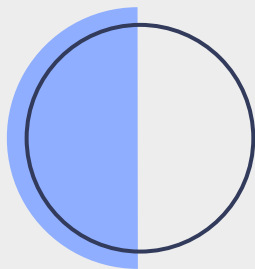
## Modelling



# 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  $R^2$  score compared to other 2 ML models



THANK  
YOU



**Siti Alawiyah**

Linked In:



Github:

