Instructions

The tech test is a programming exercise to evaluate the candidate's technical skills and approach to machine learning development. The candidate is expected to produce a solution in code that demonstrates they understand how to solve the problem using clear concise code.

Please DO:

- Include instructions on how to run the code
- Keep it simple
- Return the (zipped) solution within 72 hours by email to technicaltest@alefeducation.com
(or a link to a google drive folder with the zipped solution)
- Ask any questions by emailing the above address
- Use any programming language to solve the problem unless specified.

Please DON'T:

- Use a public source control system (e.g.: GitHub)
- Build a UI - the focus of the test is on the technical solution and not the interface
- Spend more than 2 hours - the important thing is that we understand your approach and way of thinking, it's enough to demonstrate you could complete the task if you spent more time.
- Write more than 100-200 lines of code! it's possible to produce quite lean solutions
- Cheat! Cheaters will be immediately dismissed and blacklisted by Alef.

Dataset:

The dataset is attached in the email. It contains 5 columns and the last column is the target variable.

- Gender
- Stream
- Subject
- Marks
- Course

The Course Recommendation Problem

You are provided with a sample dataset where you have the student's gender, stream, subject and marks details and their respective choice for course selection. As a machine learning engineer you are expected to build a simple recommendation system to predict the target course based on student’s information.

Business Requirement:

The solution should contain the following

1. A training script called **train.py** containing classes for DataLoader, Model and train function.
2. A inference script called **infer.py** containing API endpoints to predict recommendations from the model created with training script.
3. Both these files are covered with unit test cases for all functions apart from the functional test conditions mentioned below.
4. Create a dockerfile with commands to run either train or infer

We do NOT expect the following

1. Exploratory data analysis.
2. Model evaluation.
3. Use of databases.

Functional Test Conditions:

You have to write test cases to predict the course choices for the following examples. Remember, we are not looking for correct answers, but rather clean coding practice, design and approach to solve the problem.

Gender	Stream	Subject	Marks	Course
Female	Science	Math	73	
Male	Commerce	History	78	
Female	Humanities	Economics	69	

Assessment Criteria:

- Should cover all 4 business requirements.
- Should cover the functional test case.
- Demonstrate clean coding and test driven development.
- Should be organized to demonstrate as a python production code file rather than a .ipynb file used for experimentation.