

Assignment: Student Management System with XML

Objective:

Build a Python program that reads an XML file of student data, processes it, and displays detailed information for each student. You'll also generate a new XML report.

```
<Students>
  <Student id="1">
    <name>John Doe</name>
    <age>20</age>
    <gender>Male</gender>
    <Subjects>
      <Subject name="Math" mark="90"/>
      <Subject name="Physics" mark="85"/>
    </Subjects>
  </Student>
  <Student id="2">
    <name>Jane Smith</name>
    <age>22</age>
    <gender>Female</gender>
    <Subjects>
      <Subject name="Biology" mark="88"/>
      <Subject name="Chemistry" mark="92"/>
      <Subject name="Math" mark="78"/>
    </Subjects>
  </Student>
</Students>
```

Program Requirements:

1. **Read the XML file** and extract data for each student (name, age, gender, subjects, marks).
2. **Display each student's information:**
 - Name, Age, Gender
 - List all subjects and marks
 - Calculate the average mark and display the best subject (highest mark)
 - Indicate **Pass** or **Fail** based on the average (Pass: ≥ 50)._
3. **Export a new XML report** containing:
 - Student Name
 - Average mark
 - Pass/Fail status
4. Prompt the user to input a **minimum grade filter** (e.g., show only students with an average mark higher than 70). Only include students meeting this filter in the exported XML.