

# Java Fundamentals

## Prabhakar

### Tasks:

1. Read an XML file "student.xml" containing list of student data in the following format, deserialize them into java objects, then serialize the unique <rollnumber, total marks(Phy+chem+math)> to a text file "student.txt" with appropriate exception handling.
2. Secondly, deserialize the previously stored student.txt file with roll num and total marks. Then, serialize the top 5 students' roll numbers and total marks into excel or csv file in the following format.
3. Write the implementation for singleton class.

### 1. StudentData.xml

```
<students>
  <student>
    <roll>12</roll>
    <marks>85</marks>
    <subject>Maths</subject>
  </student>
  <student>
    <roll>13</roll>
    <marks>60</marks>
    <subject>physics</subject>
  </student>
  <student>
    <roll>15</roll>
    <marks>79</marks>
    <subject>chemistry</subject>
  </student>
  <student>
    <roll>13</roll>
    <marks>85</marks>
    <subject>Maths</subject>
  </student>
```

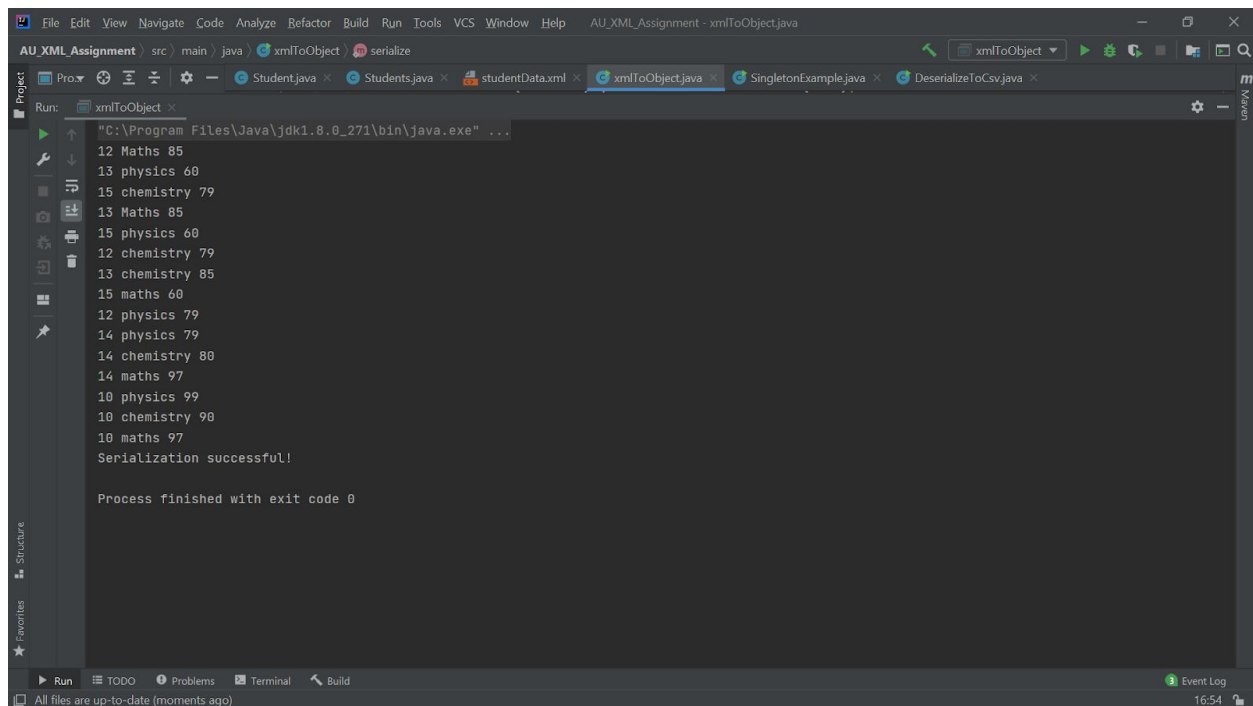
```
<student>
  <roll>15</roll>
  <marks>60</marks>
  <subject>physics</subject>
</student>
<student>
  <roll>12</roll>
  <marks>79</marks>
  <subject>chemistry</subject>
</student>
<student>
  <roll>13</roll>
  <marks>85</marks>
  <subject>chemistry</subject>
</student>
<student>
  <roll>15</roll>
  <marks>60</marks>
  <subject>maths</subject>
</student>
<student>
  <roll>12</roll>
  <marks>79</marks>
  <subject>physics</subject>
</student>
<student>
  <roll>14</roll>
  <marks>79</marks>
  <subject>physics</subject>
</student>
<student>
  <roll>14</roll>
  <marks>80</marks>
  <subject>chemistry</subject>
</student>
<student>
  <roll>14</roll>
  <marks>97</marks>
  <subject>maths</subject>
</student>
```

```

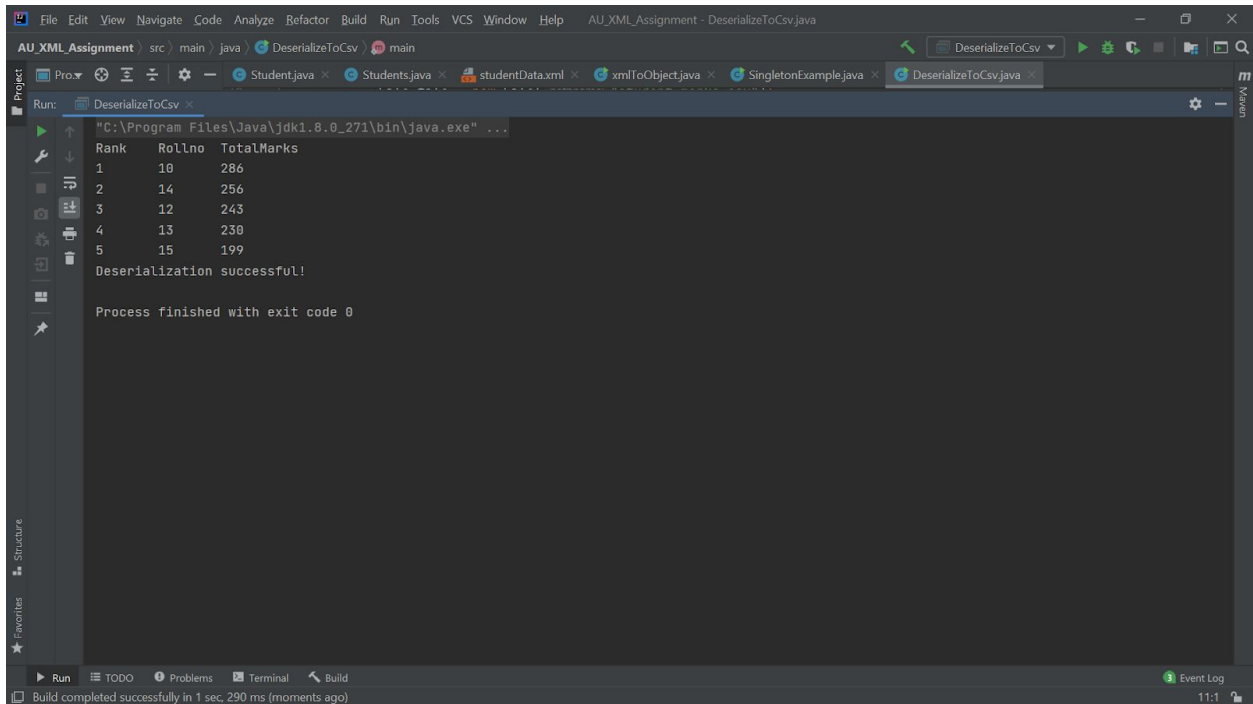
<student>
    <roll>10</roll>
    <marks>99</marks>
    <subject>physics</subject>
</student>
<student>
    <roll>10</roll>
    <marks>90</marks>
    <subject>chemistry</subject>
</student>
<student>
    <roll>10</roll>
    <marks>97</marks>
    <subject>maths</subject>
</student>
</students>

```

## XML file to Student Text file using Serialization:



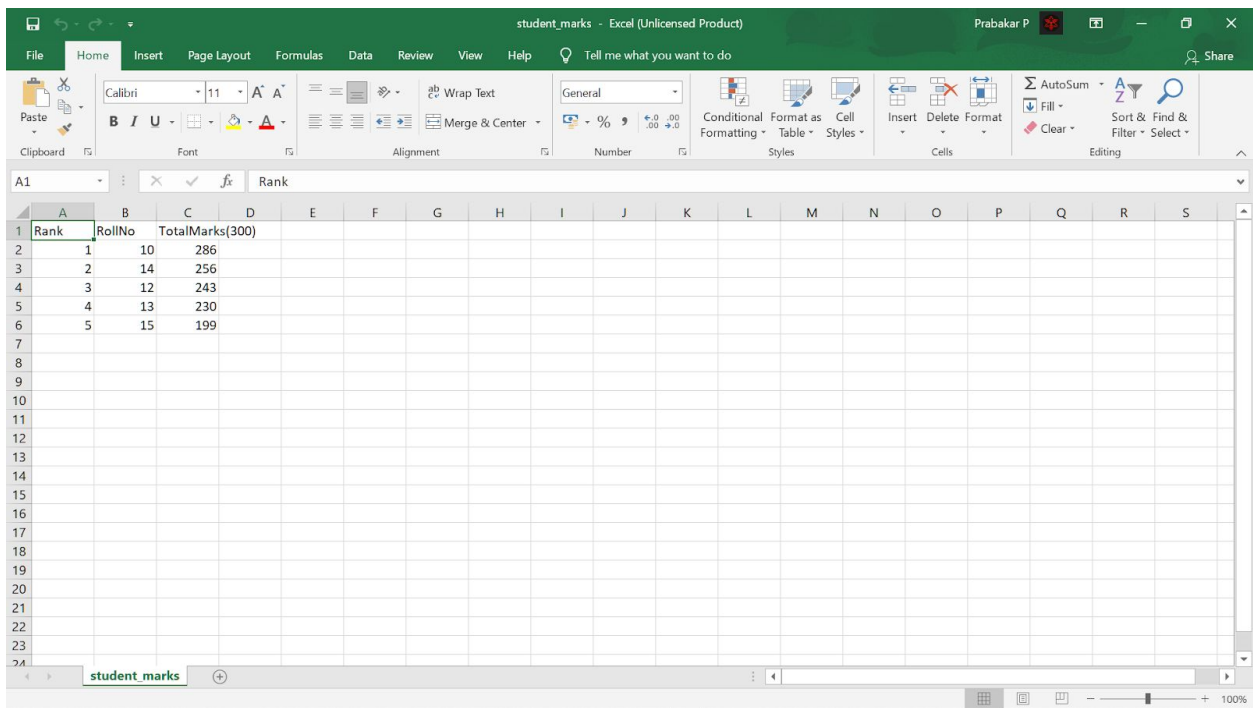
## Deserialize the text file data to CSV file:



The screenshot shows an IDE window titled "AU\_XML\_Assignment - DeserializeToCsv.java". The "Run" tab is active, displaying the output of the program. The output shows a table with columns "Rank", "RollNo", and "TotalMarks", followed by five rows of data. Below the table, it says "Deserialization successful!" and "Process finished with exit code 0".

```
Run: DeserializeToCsv x
"C:\Program Files\Java\jdk1.8.0_271\bin\java.exe" ...
Rank  RollNo  TotalMarks
1     18     286
2     14     256
3     12     243
4     13     230
5     15     199
Deserialization successful!
Process finished with exit code 0
```

## CSV file:



The screenshot shows an Excel spreadsheet titled "student\_marks - Excel (Unlicensed Product)". The data is organized into columns: Rank, RollNo, and TotalMarks(300). The data is as follows:

Rank	RollNo	TotalMarks(300)
1	18	286
2	14	256
3	12	243
4	13	230
5	15	199

## Singleton Implementation:

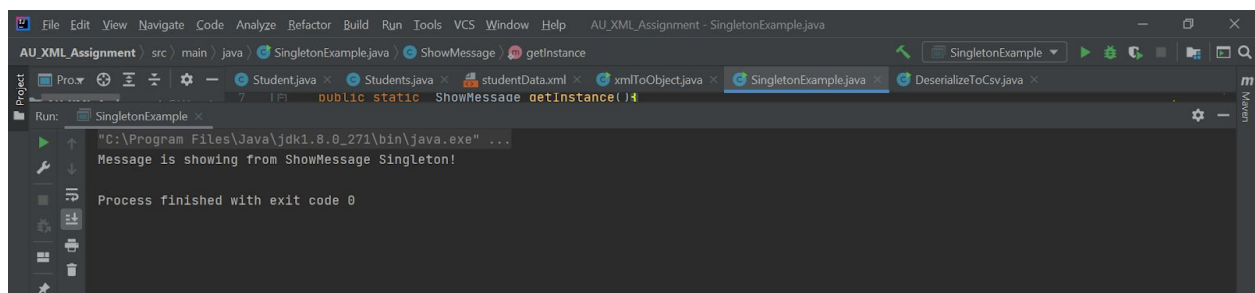
```
class ShowMessage
{
    private static ShowMessage singletonPrinter = new ShowMessage();

    private ShowMessage() {}

    public static ShowMessage getInstance() {
        return singletonPrinter;
    }

    protected static void showData(String data) {
        System.out.println(data);
    }
}

public class SingletonExample {
    public static void main(String[] args) {
        ShowMessage showMessage = ShowMessage.getInstance();
        showMessage.showData("Message is showing from ShowMessage Singleton!");
    }
}
```



**Note:** code attached in different folder