Student Grade Calculator Using Polymorphism

Assignment

Write a program to find the average and final grade for a college student's course work.

Constraints

- Student type can be either **Grad** or **UnderGrad**
- Both student types can have any number of the following:
  - Assignments
  - Discussions
  - Midweek Assignments
- **Grad** students have one additional assignment - a Final Thesis
- The final average for **UnderGrad** students is based on the following:
  - Assignments @ 65%
  - Discussions @ 25%
  - Midweek Assignments @ 10%
- The final average for Grad students is based on the following:
  - Assignments @ 40%
  - Discussions @ 15%
  - Midweek Assignments @ 15%
  - Final Thesis @ 30%
- Grades should be of type double
- **UnderGrad** and **Grad** students can have one extra credit point for the *IDEA Survey* added to their final average

Requirements

- Request the first and last name of a student (separately)
- Request student type of either **UnderGrad** or **Grad**
- Request the number of *Assignments, Discussions, and Midweek Assignments*
- Enter grades for each category
- Ask the student if they took the *IDEA Survey*
- Use separate (external to the main class) subclasses
- Subclasses should use constructors and initializers as well as set and get methods
- **UnderGrad** and **Grad** student should be subclasses of a **Student** superclass
- Final grade averages should output to two decimal places
- Implement a loop to return and enter a new set of student grades (run the program again) if the user wishes to
- This program will utilize code learned from Week 1 through Week 11

Hints

- Student type subclasses (**Grad** & **UnderGrad**) will hold the differences between the student types
- The Student superclass can do the averaging
- Considering using boxed ArrayLists for holding the grades from the different grade categories

- Make sure you use Java coding conventions

Expected Output

Below is a sample run with three iterations. User input is in **red**:

Welcome to the Student Grade Calculator
Enter Student's First Name: **Mel**
Enter Student's Last Name: **Brookes**
Select Mel Brooke's student type:
1. Under Graduate Student
2. Graduate Student
->: **1**
Enter the number of Assignment grades: **3**
Enter Assignment grade number 1: **100**
Enter Assignment grade number 2: **78.95**
Enter Assignment grade number 3: **89**
Enter the number of Discussion grades: **3**
Enter Discussion grade number 1: **100**
Enter Discussion grade number 2: **100**
Enter Discussion grade number 3: **95**
Enter the number of Midweek Assignment grades: **3**
Enter Midweek Assignment grade number 1: **99**
Enter Midweek Assignment grade number 2: **90.5**
Enter Midweek Assignment grade number 3: **100**
Did Mel Brookes fill out the IDEA Survey? (Y for Yes - N for No): **y**
Mel Brooke's final grade average is: 93.29

Would you like to run another calculation? Y for Yes, N for No: **y**
Enter Student's First Name: **Tom**
Enter Student's Last Name: **Jones**
Select Tom Jones's student type:
1. Under Graduate Student
2. Graduate Student
->: **2**
Enter the number of Assignment grades: **2**
Enter Assignment grade number 1: **79**
Enter Assignment grade number 2: **93.75**
Enter the number of Discussion grades: **2**
Enter Discussion grade number 1: **100**
Enter Discussion grade number 2: **100**
Enter the number of Midweek Assignment grades: **2**
Enter Midweek Assignment grade number 1: **95**
Enter Midweek Assignment grade number 2: **100**
Enter the final Thesis grade for Tom Jones: **93.55**
Did Tom Jones fill out the IDEA Survey? (Y for Yes - N for No): **n**
Tom Jones's final grade average is: 92.24
Would you like to run another calculation? Y for Yes, N for No: **n**
Thank you for using the Student Calculator. Goodbye.

Deliverables

Please zip your program and submit the zip file by the due date listed in the requirements.