Part A will be considered part of Project 1 and must be submitted under Project 1 to receive credit.
Peform the following steps and submit required items with Project 1:
1. Enter the class code into one file named with the file name **Student_*YourName*.java**
2. Change names to your name in class, @author, and where first object is created ??Robert ???Laurie.
3. Debug and run the program until it works.
4. Create meaningful JavaDoc comments in this java source code at the areas marked by ???.
5. Add sufficient Java comments to explain how the program works in detail?
6. Generate the JavaDoc from eclipse under the Project menu item. You will be copy and paste the html from the generated document to the word document in part 7.
7. Create a text document (.doc) and explain in proper English in complete sentences the following.
    a) Define an immutable class. Explain why the Student1 class is or is not an immutable class?
    b) Describe the meaning of the term *Class Abstraction*.
    c) Describe the meaning of the term *Class Encapsulation.*
    d) Create a UML Diagram section in this document to describe the **Student_YourName** class.
    e) How many objects are created in the Student1 program and which method creates these objects?
    f) Describe why all Data fields should be labeled private?
    g) Describe the quantity and identifiers of methods in the Student1 class that can be classified as: Constructor, Accessor, Mutator, and Application Launcher methods.
    h) For each occurrence in the program, explain the purpose of the keyword **this**.
    i) Identify and explain examples of composition in this **Student_YourName** class.
    j) Explain the purpose and syntax of both JavaDoc and Java comments?
    k) Create a section in this document called JavaDoc:
        • Copy and paste the JavaDoc that is created for this class to the end of this document.
    l) Upload this **Student_*YourName*.doc** file to WebTycho as one of the part of Project 1 Part A files.
8. Upload your source code file **Student_*YourName*.java** to WebTycho as one of the Project 1 files.
9. Do Programming Exercise 10.5 on page 367. Utilize and document the StackOfIntegers class Listing 10.8 as shown in the textbook. Create a java file called **PrimeFactors_*YourName*.java** and fully comment with JavaDoc and Java comments, that will utilize the StackOfIntegers.java file. Upload your **PrimeFactors_*YourName*.java** file to WebTycho as one of the Project 1 Part A files.

```java
import java.util.*;
import javax.swing.*;
/** Student Class Description
 *
 * @author   ???YourName
 * @version 1.0 Build 1 June 3, 2012
 */
public class Student_YourName
{
  /** Data Field is Instance Variable for Student First Name */
  private String      sFirstName;

  /** Data Field is ??? */
  private String      sLastName;

  /** Data Field is ??? */
  private Date        dateCreationDate;

  /** Data Field is ??? */
  private int         nStudentNum;

  /** Data Field is Class Variable stores last student ID assigned */
  private static int  nStudentNumLast = 0;   // Initialized to zero

  /** Constructor Method - Initializes Name instance variables */
  public Student_YourName(String sFirstName, String sLastName, int nStudentNum)
```

```java
  {
    this.nStudentNum      = nStudentNum;
    nStudentNumLast       = nStudentNum;
    this.sFirstName       = sFirstName;
    this.sLastName        = sLastName;
    this.dateCreationDate = new Date();
  }

  /** ??? Method - ??? */
  public String getName()
  {
    String sName =  sFirstName + " " + sLastName;
    return sName;
  }

  /** Accessor Method - Gets instance variable ID */
  public int getID()
  {
    return nStudentNum;
  }

  /** ??? Method - ??? */
  public Student_YourName(String sFirstName, String sLastName)
  {
    this(sFirstName, sLastName, ++nStudentNumLast);
  }

  /** ??? Method - ??? */
  public Date getDateCreated()
  {
    return dateCreationDate;
  }

  /** Method - Gets Student Information
   *
   * @return  String that has Student Number
   */
  public String getStudentInfo()
  {
    String sName;
    sName = String.format("%n%9d %s, %s", nStudentNum, sLastName, sFirstName);
    return sName;
  }

  /** Application Launcher Method - ???  */
  public static void main(String[] args)
  {
    Student1 oStudent1 = new Student1("???Robert", "???Laurie", 3999);
    Student1 oStudent2 = new Student1("John", "Doe");
    Student1 oStudent3 = new Student1("Jane", "Doe");
    String  sDisplay  = String.format("Starting with: %s", oStudent1.getName());
    sDisplay += oStudent1.getStudentInfo() + oStudent2.getStudentInfo()
      + oStudent3.getStudentInfo();
    JOptionPane.showMessageDialog(null, sDisplay);
  }
}
```