Steps to write a Java program using Eclipse

Step 1: Do you already have a Java Project? If yes, jump to Step 2; otherwise, continue with Step 1 to create a Java Project.

Before writing a Java program, you need to have a Java Project (which is actually a folder) to hold your source programs.

To create a Java Project:

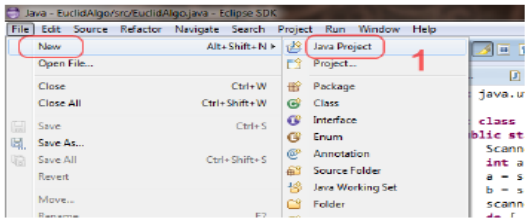
1. Choose *File→ New → Java Project* to display the New Project wizard.

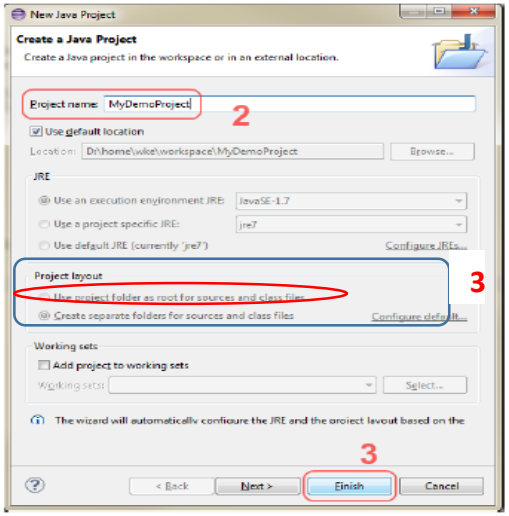
2. Type **a project name** in the Project name field. As you type, the Location field is automatically set by default. You may customize the location for your project.

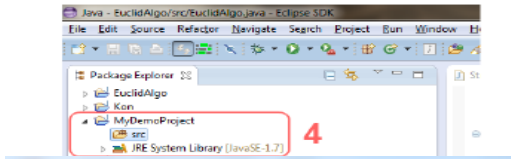
3. Configure Project Layout: Choose "*Use project folder as root for sources and class files*" so that the .java and .class files are in the same folder for easy access. Click Finish.

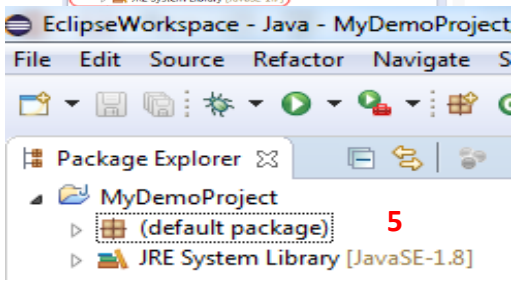
4. In the Package Explorer, you will see the Project created with the project name you typed in point 2 above.

5. Now, you are ready to go to the next step to write your Java program which will be stored in the "default package" if you follow the instructions of point 3 above.
   If you did not follow the instructions of point 3, you will see a folder named "src" which will hold your Java programs.









Step 2: Create your Java Program: First, choose the Project from the Package Explorer that you would like to save the Java Program to.

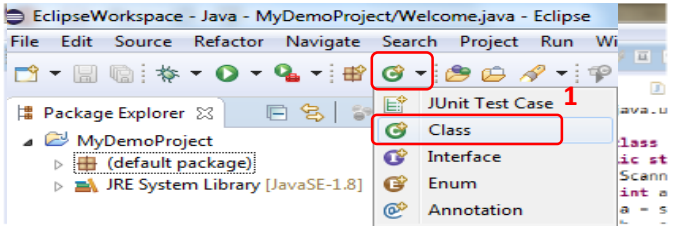
1. Choose *File*→ *New* → *Class* to display the New Java Class wizard.

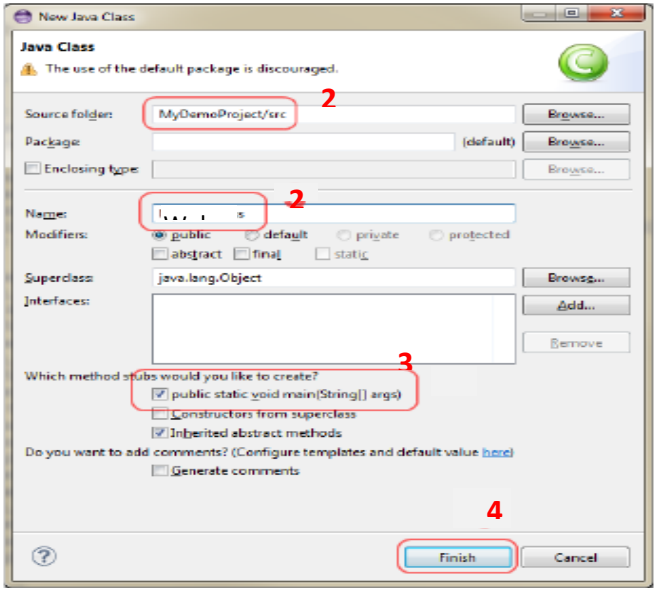
2. Confirm that the location to store your Java program (source files) are correct. Then, type the name of the Java Program in the Name field. If you type "Welcome" here, your Java program will be "Welcome.java" and the class that will be created will be "public class Welcome". Note that to follow the Java naming convention, class name starts with an uppercase letter.

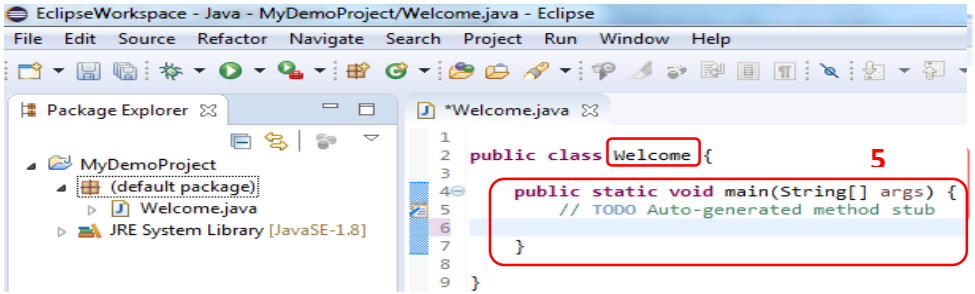
3. Check the option *public static void main(String[] args)*.

4. Click *Finish* to generate the template for the source code "Welcome.java".

5. Now, you can import necessary classes before the main class, and write statements in the main method.







Step 3: Writing the program code.

1. **Algorithm**: One suggestion is to start with an algorithm (or pseudocode) first, and then translate the algorithm to Java programming language. For instance, to write a program to calculate the area of a circle, you can first list out the steps involved in English.

```
public class ComputeArea {
  public static void main(String[] args) {
    // Step 1: Read in radius

    // Step 2: Compute area

    // Step 3: Display the area

  }
}
```

2. **Declare variables**: Now that you have a plan (algorithm) in mind, you need to declare variables to store the value for processing. To declare a variable, you have to specify the data type of the variables. Some examples are:
   - int numberOfYears; // to store an integer value
   - double testMark; // to store a numeric value with decimal point

   Naming convention for variables is to start with a lowercase letter and capitalize the first letter of the subsequent words, e.g. studentName, courseCode.

3. If you need to read user input from the keyboard,
   (1) you need to create an instance of the Scanner class with the following statement **inside the main method**, and then
   Scanner input = **new** Scanner(System.in);
   (2) use the corresponding methods of the Scanner class to read in the user input from the keyboard.
      - nextDouble() – to read in a numeric value with decimal point
      - nextInt() – to read in an integer value

   (3) The **Scanner** class is in the **java.util** package. It has to be imported before you can use it. So, include the following statement in the first line of your program: import **java.util.Scanner**

4. If you need to display output on the console, use System.out.println("The answer is " + answer); if you use a variable named "answer" to store the value of the output.