**22W\_CST8116\_451 Intro to Computer Programming**

Project #2 Developing a Java Application

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# Project #2 Developing a Java Application

## Develop a Shipping Calculator Java application, which contains the concepts of a Java object and class.

This Java Program must include the declaration and definition of object and class.

The steps for the program are outlined below:

1. Create a Java class named **Package** that contains the following:
   1. Package should have three **private** instance variables of type **double** named **length, width, and height**.
   2. Package should have one privateinstance variable of the type **Scanner** named **input**, initialized to **System.in**.
   3. **No-args** (explicit default) public constructor, which initializes all three double instance variables to 1.0.
   4. **Initial** (parameterized) publicconstructor, which defines three parameters of type double, named length, width, and height, which are used to initialize the instance variables of same name.
   5. Public **copy** constructor, with a parameter of type Package, used to duplicate an existing Package object.
   6. Three public void methods named **inputLength**,**inputWidth**, and **inputHeight**. Each method will prompt the user for the appropriate property, and input a double value using the Scannerobject input to initialize the instance variables
   7. A **public void** method named **displayDimensions** which prints the dimensions as length X width X height (each value separated by a “ X “).
   8. A public method of type double named **calcVolume** that calculates the volume and returns the result as a double value.

### Code

Graphical user interface

Description automatically generated with medium confidence

Graphical user interface

Description automatically generated with medium confidence

1. Create a class named **Shipment**
   1. The program mustask for two separate packages to ship
   2. The program mustcalculate the cost difference using the difference in volume:
      1. i.e. The base price for a package with volume <=1 is $3, for every unit increase in volume, the cost increases by $1

* e.g. 1: a parcel with volume 4, the cost is $3+ $1 +$1 +$1 = $6
* e.g. 2: a parcel with volume 2.5, the cost is $3 + $1.5 = $4.5
  1. Give the following (in order of priority):
     1. If there is no difference, display the costs as the same
     2. If the cost of one is less than twice the other, display that it is “slightly more than”
     3. If the cost of one is less than three times the other, display that it is “twice”
     4. If the cost of one is less than four times the other, display that it is “triple”
     5. If the cost of one is less than five times the other, display that it is “quadruple”
     6. Otherwise, display that as a calculated multiple (eg 5x, 6x etc)
  2. The program mustindicate the more costly package (if not same cost) and by how much
  3. The program mustcalculate and display the appropriate message (including proper dimension and cost format)
  4. Your code also does NOT need to worry if the user inputs an invalid value for the input (example: invalid length). The output of your code mustmatch the samples.
  5. You must change the title i.e. Welcome to <your name> shipping calculator!

### Code

Text

Description automatically generated

Text

Description automatically generated

## Run Results

Equal to:

Graphical user interface, text, application, email

Description automatically generated

Slightly more than:

Graphical user interface, text, application, email

Description automatically generated

Twice:

Graphical user interface, text, application, email

Description automatically generated

Triple:

Graphical user interface, text, application, email

Description automatically generated

Quadruple:

Graphical user interface, text, application, email

Description automatically generated

Multiple:

Graphical user interface, text, application, email

Description automatically generated

## References

### Software

Eclipse Foundation. (n.d.). Eclipse IDE for Java Developers, Version (2021-12(4.22.0). *Eclipse.org*. Retrieved January 20, 2022, from <https://www.eclipse.org/> .

Amazon. (n.d.). Amazon Corretto Java Development Kit, Version (11.0.13.8.1). *Amazon Corretto*. Amazon. Retrieved January 20, 2022, from <https://aws.amazon.com/corretto/>