Menu Driven Program

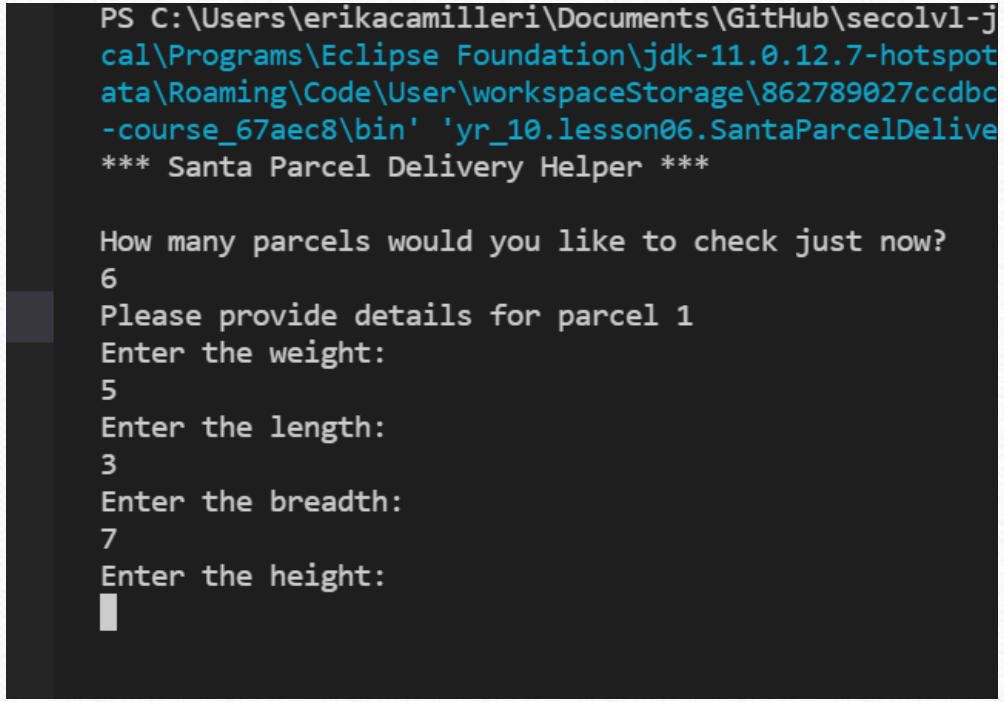
A byte size lesson in Java programming.

Skills from previous lessons

- Input/Output
- Declare and store variables
- Switch Case
- Methods

Empowering the user with choice

- So far we have written algorithms in Java for simple and specific problems.
- The user was guided on how to use the program every step of the way.
- If the user used your program twice then the user would kind of do the same thing.
- But the most interesting programs do not really behave like this do they?

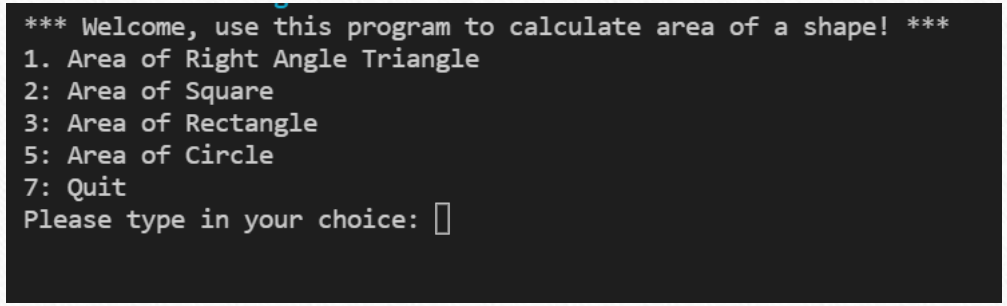


What is a menu driven program?

- In the same way we are presented with a food menu when we eat out at a restaurant with our parents, we can provide the human using our program with a nice functions menu.
- This means that the person running the program can choose what to do!
- The output of the program will be based on the option selected by the user.

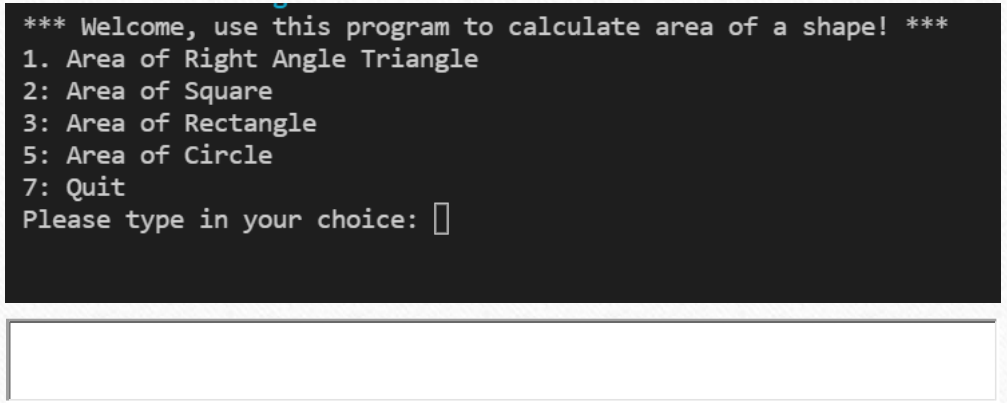
Example of a Menu

- Imagine that we write a program that can calculate the area of multiple shapes
- When the user opens our program he or she is first presented with a **menu of different options**.



Let's test your understanding

- What does the user need to input to calculate the **Area of a Circle**?



Area of a Circle Output

- When a user enters ‘5’ as a choice the program will behave in the following manner…

```
Your choice is Area of Circle.
Enter radius:
4
The area of your circle is: 50.26548245743669
```

- Should it behave in the same way if the user enters a **different choice**?

Fill in the blanks

```
*** Welcome, use this program to calculate area of a shape! ***
1. Area of Right Angle Triangle
2: Area of Square
7: Quit

Please type in your choice:
1

Your choice is [          ]


Enter [      ]
4

Enter [      ]:
3

The area of your [          ]
```

How can we achieve this?

- Building an interesting program like is very useful and **very easy**!
- You are already familiar with all the components you need you just need to know how to combine the elements together.
- For a very simple menu-driven program you need to know how to write:
  - Input and output statements.
  - Statements that declare and store variables.
  - Methods that accept parameters and return a value.
  - The switch case statement.

Breaking it down

- Step 1. Write a series of **output statements** to display a menu.

```
System.out.println("1. Display the Starters Menu.");

System.out.println("2. Display the Entrée Menu.");

// Option 3. to display Dessert Menu
```

Breaking it down

- Step 2. Write **methods** for each and every option you have.

```
public static void displayStartersMenu() {
    System.out.println("For starters we have: pasta, soup and garlic bread.");
}

public static void                                  {
    System.out.println("For dessert we have: ice-cream, cake and pie.");
}
```

Breaking it down

- Step 3. Write statement to **ask and accept a user choice**.

```
// Declare variable to store user's choice
int choice;

// Ask the user to make his/her choice and store it
System.out.println("Please type in your choice: ");

                = sc.nextInt();
```

Breaking it down

- Step 4. Tie it all together with a **switch case** statement.

```
switch (choice) {
     case 1: {
          System.out.println("Let's load the starters menu for you...");
          // Make the correct method call
          displayStarterMenu();
          break;
     }
    case 2: {
          System.out.println("Let's load the entree menu for you...");
          // Make the correct method call
          
          break;
     }
}
```