PSLG Session 2

Monday Session
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The Agenda

Today we'll be running through:

- Casting.
- Relational expressions.
- if statements (Syntax and Problems).
- If… else statements (Syntax and Problems).
- if… elseif… else statements (Syntax and Problems).

Casting:

Two types of casting:

Type	Implicit casting	Explicit casting
Info	Automatic for smaller to larger types eg. int to double	Happens when you convert from a larger type to a smaller type eg. double to int

Syntax	int a = value;
	
	double b = a;
		double x = 8.7;
		
		int z = (int) x;

Problem for casting:

Create a class called problem1 and make a main method.

Initialize three different variable types that hold a number value and find the average between them. Store the average in double variable and cast that double variable to an integer.

The solution

```java
public class Problem1 {
    public static void main(String[] args) {

        double a = 4.5;
        int b = 7;
        float c = 6.17f;

        double avg = (a + b + c) / 3;

        int average = (int) avg;

        System.out.println(average);
    }
}
```

Relational Expressions:

The comparison and determining the relationship between two things.

- Answer can only be **yes** or **no**.

Java uses the following operators for Relational Expression:

==	Equal	<	Less than
!=	Not Equal	<=	Less than or Equal to
>	Greater than	>=	Greater than or Equal to

Contd. Of Relational Expressions:

- Used to connect two Relational Expressions.

  Java Syntax for AND & OR:

  && → AND

  || → OR

if/if... else/if... else if... else

- Big for decision making in java.

Syntax for if:

```
if(relational expression){
    Your statement;
} //end if
```

Syntax for if… else:

```
if(relational expression){
    Your statement;
}else{
    Next statement;
}
```

//else condition only plays out if the if condition is false and the else one is true

Contd.

Syntax for if…elseif…else:

```
if(relational expression){
      Your Statement;
}else if(new relational expression){
      Next statement(1);
}else{
      Next statement(2);
}//a bit long but very useful.
```

If... else statement problem:

Make a class called Problem2 and create a main method.

Initialise a variable called crewmate that contains a random number between 1 and 2. Create a conditional statement with a relational expression that if the number is one prints “You are the imposter” otherwise it prints “Someone else is the imposter, beware!”

The solution

```
public class Problem2{
    public static void main(String[] args){
        //Creating the random variable
        int crewmate = (int) ((Math.random()*2)+1);

        //Constructing our conditional statement
        if(crewmate % 2 == 1){
            System.out.println("You are the imposter");
        }else{
            System.out.println("Someone else is the imposter, beware!");
        }

    }
}
```

If… else if… else statement problem:

Create a class called problem3 and make a main method.

Initialise a variable age that generates a random number between 1 and 100.

Write a program that then tests this age variable to decide what age group that age belongs in. If the age is under 13, the output should be ‘Child’, if they are between 13 and 19 inclusive, the output should be ‘Teenager’ and if they are between 20 and 65, the output should be ‘Adult’. And if they are 66 and over, the output should be ‘Senior’.

The solution

```
public class Problem3 {
    public static void main(String[] args) {
        int age = (int) (Math.random() * 100 + 1);

        System.out.println(age);

        if(age < 13){
            System.out.println("This is a child");
        }else if(age >= 13 && age <= 19) {
            System.out.println("This is a teenager");
        }else if(age >= 20 && age <= 65){
            System.out.println("This is an adult");
        }else{
            System.out.println("This is a senior");
        }
    }
}
```