3.Conditional statements and loops

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Overview

Programming is all about logic

A game or any other application mainly consist of lots of logic.

You'll have to deal with the logic of your application.

Figuring out which logic should go with your application is the main task.

To implement logic we need some sort of basic tools for it.

Conditional and loops are the core tool of logic for this.

$$\text{if } (someconditions)\{sometasks\}$$

It is what it sounds. You impose some sort of condition then if that happens you do something.

Otherwise you do something else.

Example

Here is an example of if.

```
public class ConditionalExamples {
    public static void main(String[] args) {
        int age;
        age = 10;

        if ( age < 18 ) {
            System.out.println("You are not allowed to view
        }
    }
}
```

Then hit run and see!

Declaration and assignment

Here is an example of if and else.

```java
public class ConditionalExamples {
    public static void main(String[] args) {
        int age;
        age = 10;

        if ( age < 18 ) {
            System.out.println("You are not allowed to view
        }
        else {
            System.out.println("Welcome to our Wargame");
        }
    }
}
```

Then hit run and see!

Use && , || ect to combine conditions

```java
public class ConditionalExamples {
    public static void main(String[] args) {
        int age;
        age = 10;

        if ( age > 18 && age < 60 ) {
            System.out.println("You are a matured person no
        }
        else {
            System.out.println("You're either a baby or an
        }
    }
}
```

Use else if for more conditions

```java
public class ConditionalExamples {
    public static void main(String[] args) {
        int age = 17;
        if ( age < 25 ) {
            System.out.println("You are young");
        }
        else if (age < 35) {
            System.out.println("You're having midlife crisi
        }
        else if (age < 55) {
            System.out.println("You're slowly getting old")
        }
        else {
            System.out.println("You are old");
        }
    }
}
```

Doing a task repeatedly is pretty boring.

Just use a loop to make your life easier.

For Loop

$for(initialization; condition; increment)\{sometasks\}$

- ▶ You take a variable and then for that variable you repeatedly do some tasks. Usually when the variable crosses some particular value you stop.
- ▶ So first you initialize that variable then until a certain condition holds you do those tasks repeatedly.
- ▶ Till that condition breaks you increment the value or you'll get stuck for ever.

This will get printed 100 times:

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

        for(int age = 1; age <= 100; age ++ ) {
            System.out.println("Happy␣" + age + "th␣Birthday
        }

    }
}
```

You can aslo use conditionals to manipulate loops

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

        for(int age = 1; age <= 100; age ++ ) {
            if ( age % 2 == 0 ) {
                System.out.println("Happy Good Birthday");
            }
            else {
                System.out.println("Happy Pocha Birthday");
            }
        }
    }
}
```

break and continue statement can a good way to manipulate loops

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

        for(int age = 1; age <= 100; age ++ ) {
            if ( age % 2 == 0 ) {
                continue;
            }
            System.out.println("Happy Birthday");
        }
    }
}
```

You can alwasy use loops inside loops and conditionals inside conditionals

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

        for(int age = 1; age <= 100; age ++ ) {
            for(int month = 1; month <= 12; month ++ ) {
                System.out.println("A:"+age+",M:"+month );
            }
        }

    }
}
```

The End