Object Oriented Programming

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Functions

Function is a block of code that performs a specific task.

```
Public void demo(){
        //function body
}
```

Function parameters and arguments

```
public int add(int a, int b) {
        return a + b;
}
```

parameters

```
add(5,6)                    //function call
```

Arguments

Introduction to OOP

Object-Oriented Programming is a methodology or paradigm to design a program using classes and objects.

It simplifies software development and maintenance by providing some concepts:

Objects

Classes

Encapsulation

Inheritance

Polymorphism

Abstraction

Objects

Objects are the real world entities that has properties and behavior.

Eg: car is object

Properties - car,model,speed,brand

Behavior - stop,move

Classes

Collection of objects is called class. It is a logical entity.

A class can also be defined as a blueprint from which you can create an individual object.

```
public class Main {

  int x = 5;

  }
```

Methods and attributes

class attributes are variables within a class

methods are declared within a class, and that they are used to perform certain actions

```
public class Main {
 static void myMethod() {
   System.out.println("Hello World!");
 }

 public static void main(String[] args) {
   myMethod();
 }
  }
```

Constructors

A constructor in Java is a special method that is used to initialize objects. The constructor is called when an object of a class is created.

It can be used to set initial values for object attributes

```java
// Create a Main class
public class Main {
  int x;  // Create a class attribute

  // Create a class constructor for the Main class
  public Main() {
    x = 5;  // Set the initial value for the class attribute x
  }

  public static void main(String[] args) {
    Main myObj = new Main(); // Create an object of class Main (This will call the constructor)
    System.out.println(myObj.x); // Print the value of x
  }
}
```

Q & A