1. How to Create an Object in Java?

   An object in Java is created using the new keyword. For example:

   Student stdObj = new Student();

2. What is the use of a new keyword in Java?

   The new keyword is used to:

   - Allocate memory to the object that has to be created
   - Call the constructor of a class to assign initial values to the object.

   // Creates an object and calls the constructor to initialize the object with initial values

   MyClass obj = new MyClass();

3. What are the different types of variables in Java?

   Local Variables:

   - It is declared inside methods, constructors, or blocks.
   - Scope is limited to the block in which they are declared.

   Instance Variables:

   - It is declared outside methods but inside the class additionally access modifiers can be added to these variable like private, public, or protected
   - Each object has its own copy of these variables

   Static Variables:

- Declared using the static keyword inside the class but outside methods.
- Shared among all objects of the class. This variable is shared among all the objects and can be accessed without creating any object

4. What is the difference between Instance variable and Local variables?

   Local Variables:

   - Declared inside methods, constructors, or blocks.
   - Scope is limited to the block in which they are declared.

   Instance Variables:

   - Declared outside methods but inside the class.
   - Each object has its own copy of instance variables.

5. In which area memory is allocated for instance variable and local variable?

   Instance Variables:

   - Memory is allocated in the heap memory.
   - The memory is tied to the object's lifecycle.

   Local Variables:

   - Memory is allocated in the stack memory.
   - The memory is released once the method or block execution is complete.

6. What is method overloading?

   Method overloading is a feature in Java where multiple methods in the same class have the same name but different parameter lists.

   class Calculator {

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

    double add(double a, double b) {
        return a + b;
    }

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

public class Main {
    public static void main(String[] args) {
        Calculator calc = new Calculator();
        System.out.println(calc.add(5, 10));          // Calls add(int, int)
        System.out.println(calc.add(5.5, 10.5));      // Calls add(double, double)
        System.out.println(calc.add(5, 10, 15));      // Calls add(int, int, int)
    }
}
```