OOP in Java

Object-Oriented Programming in Java

```
// The 'Hello' class is the main class where the Java program begins.
class Hello {
// The 'main' method is the entry point of the program, where execution starts.
public static void main(String[] args) {
// This line prints the message "Hello Class" to the console.
System.out.println("Hello Class");
}
}
```

Object-Oriented Programming

Procedure-Oriented Programming (POP)

- POP is also known as structured programming.
- It breaks down a program into functions or procedures.
- Procedures manipulate data often stored in global variables.
- Data and functions are separate in POP.
- Examples: C, Pascal.

```c
##include <stdio.h>

float calculateArea(float length, float width) {
return length * width;
}
int main() {
float length = 5.0;
float width = 3.0;
float area;
calculateArea(length, width);
printf("Area of the rectangle: %.2f\n", area);
return 0;
}
```

Object-Oriented Programming

Object-Oriented Programming (OOP)

- OOP revolves around objects, instances of classes.
- Data and functions are encapsulated within objects.
- Objects communicate through well-defined interfaces.
- Key concepts: Inheritance, Encapsulation, Polymorphism.
- Examples: Java, C++, Python, Ruby.

```
class Rectangle {
private float length;
private float width;
public Rectangle(float length, float width) {
this.length = length;
this.width = width;
}
public float calculateArea() {
return length * width;
}
public static void main(String[] args) {
Rectangle rectangle = new Rectangle(5.0f,
3.0f);
float area = rectangle.calculateArea();
System.out.println("Area of the rectangle: " +
area);
}
}
```

Recall and present tomorrow with examples using c and c++

1. Procedure Oriented versus Object Oriented Programming
2. OOP principles
3. Advantages and Disadvantages of OOP