

Problem 3: University Enrollment System (Hard Level)

Description:

Create a **university enrollment system** with exception handling:

- Allow students to enroll in courses.
- Throw **CourseFullException** if the course is full.
- Throw **PrerequisiteNotMetException** if prerequisites are not completed.

Code:

```
import java.util.HashMap;
import java.util.Map;
import java.util.Scanner;

class CourseFullException extends Exception {
    public CourseFullException(String message) {
        super(message);
    }
}

class PrerequisiteNotMetException extends Exception {
    public PrerequisiteNotMetException(String message) {
        super(message);
    }
}

class UniversityEnrollment {
    private Map<String, Boolean> prerequisites = new HashMap<>();
    private int maxCapacity = 2;
    private int enrolledStudents = 0;

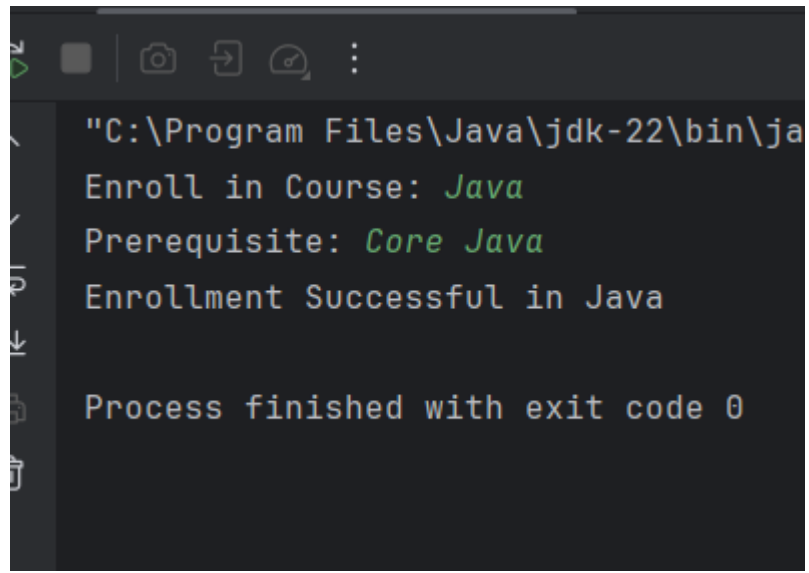
    public UniversityEnrollment() {
        prerequisites.put("Advanced Java", false);
    }

    public void enrollStudent(String course, String prerequisite) throws
Exception {
        if (enrolledStudents >= maxCapacity) {
            throw new CourseFullException("Error: CourseFullException - The
course " + course + " is full.");
        }
        if (prerequisites.containsKey(course) &&
!prerequisites.get(course)) {
            throw new PrerequisiteNotMetException("Error:
PrerequisiteNotMetException - Complete " + prerequisite + " before
enrolling in " + course + ".");
        }
        enrolledStudents++;
        System.out.println("Enrollment Successful in " + course);
    }

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        UniversityEnrollment enrollment = new UniversityEnrollment();
        try {
            System.out.print("Enroll in Course: ");
            String course = scanner.nextLine();
            System.out.print("Prerequisite: ");
            String prerequisite = scanner.nextLine();
            enrollment.enrollStudent(course, prerequisite);
        }
    }
}
```

```
    } catch (Exception e) {  
        System.out.println(e.getMessage());  
    }  
}
```

Output:



The screenshot shows a terminal window with a dark background. The output of the Java program is displayed in a monospaced font. The first line shows the Java command being executed: "C:\Program Files\Java\jdk-22\bin\java". The subsequent lines show the program's output: "Enroll in Course: Java", "Prerequisite: Core Java", and "Enrollment Successful in Java". The final line indicates that the process finished with exit code 0.

```
"C:\Program Files\Java\jdk-22\bin\java"  
Enroll in Course: Java  
Prerequisite: Core Java  
Enrollment Successful in Java  
  
Process finished with exit code 0
```