

// Question 1: Core Java Concepts

// 1. Create a class named Student

```
class Student {
```

```
String name;
```

```
int rollNo;
```

Constructor

```
Student(String name, int rollNo) {
```

```
this.name = name;
```

```
this.rollNo = rollNo;
```

```
}
```

Method to display student details

```
void displayInfo() {
```

```
System.out.println("Name: " + name);
```

```
System.out.println("Roll No: " + rollNo);
```

```
}
```

```
}
```

// 2. Create a class named BCASStudent that inherits from Student

```
class BCASStudent extends Student {  
    int semester;
```

 Constructor

```
    BCASStudent(String name, int rollNo, int semester) {  
        super(name, rollNo);  
        this.semester = semester;  
    }
```

 Override method to display BCA student details

@Override

```
    void displayInfo() {  
        super.displayInfo();
```

```
System.out.println("Semester: " + semester);  
System.out.println("-----");  
    }  
}
```

// 3. Main class

```
public class Main {
```

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

3. Create an Array of 3 BCASStudent objects

```
BCASStudent[] students = new BCASStudent[3];
```

```
students[0] = new BCASStudent("Aman", 101, 1);
```

```
students[1] = new BCASStudent("Riya", 102, 2);
```

```
students[2] = new BCASStudent("Prince", 103, 3);
```

4. Use a for loop to print details of all students

```
System.out.println("=== BCA Student Details ===");
```

```
for (int i = 0; i < students.length; i++) {
```

```
students[i].displayInfo();  
}
```

5. Try-catch block to handle potential exceptions

```
try {
```

Example of ArrayIndexOutOfBoundsException

```
System.out.println(students[5].name); //Invalid index  
(intentional)
```

```
catch}(ArrayIndexOutOfBoundsException e) {
```

```
System.out.println("Exception Caught: " + e);  
}
```

Example of NumberFormatException

```
try {
```

```
int number = Integer.parseInt("ABC"); //Invalid number
```

```
catch}(NumberFormatException e) {
```

```
System.out.println("Exception Caught: " + e);  
}
```

```
System.out.println("Program executed successfully!");
```

```
}
```

```
}
```

=== BCA Student Details ===

Name: Aman

Roll No: 101

Semester: 1

Name: Riya

Roll No: 102

Semester: 2

Name: Prince

Roll No: 103

Semester: 3

Exception Caught:

java.lang.ArrayIndexOutOfBoundsException: Index 5 out of bounds for length 3

Exception Caught: java.lang.NumberFormatException: For input string: "ABC"

Program executed successfully!