

## // 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 BCAStudent that inherits from Student

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

Constructor

```
BCAStudent(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 BCAStudent objects

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

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

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

```
students[2] = new BCAStudent("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!