

# **Advanced Server Side Programming (Lab)**

## **Assessment 1** **Exception Handling**

**Name : Brian E Shilo**

**Reg No. : 21MIC0131**

**Lab Slot : L21 + L22**

**Course code : CSI3023**

## **Problem Statement : Student Registration System**

Suppose a student would like to register a set of courses for a semester to meet his credits. Assume all are 4 credit courses. Considering the following constraints, student shall complete his/her course registration.

- a) **registerCourse(course name, course code)** - student can register maximum of 5 courses including mini project. ExceedCourseException
- b) **checkCredits()** - students should register minimum 10 credits maximum of 20 credits. Exceed CreditException, Min CreditException
- c) **registerProject (title, teamsize)** - team size can be a maximum of 4 students. TeamSizeExceedException
- d) **displayReport()**

## **Programs**

1) ass1\_21mic0131.java

```
package ass1_21mic0131;

public class Ass1_21MIC0131 {

    public static void main(String[] args) {

        Student student = new Student();

        try {

            student.registerCourse(new Course("Block chain", "CS101"));

            student.registerCourse(new Course("Discrete Maths", "CS201"));

            student.registerCourse(new Course("Physics", "CS202"));

            student.registerCourse(new Course("Computer Networks", "CS204"));

            student.registerCourse(new Course("Machine Learning", "CS301"));

            student.registerProject(new Project("Innovative Project", 6));

            student.checkCredits();

            student.displayReport();

        } catch (Exception e) {

            e.printStackTrace();

        }

    }

}
```

```
    } catch (CreditException | CourseException | TeamSizeExceedException e) {  
        System.out.println(e.getMessage());  
    }  
}  
}
```

## 2) Course.java :

```
package ass1_21mic0131;  
  
public class Course {  
    private String courseName;  
    private String courseCode;  
  
    public Course(String courseName, String courseCode) {  
        this.courseName = courseName;  
        this.courseCode = courseCode;  
    }  
}
```

## 3) CourseException.java :

```
package ass1_21mic0131;  
  
public class CourseException extends Exception {  
    public CourseException(String message) {  
        super(message);  
    }  
}
```

4) CreditException.java :

```
package ass1_21mic0131;

public class CreditException extends Exception {

    public CreditException(String message) {

        super(message);

    }

}
```

5) MinCreditException.java :

```
package ass1_21mic0131;

public class MinCreditException extends CreditException {

    public MinCreditException(String message) {

        super(message);

    }

}
```

6) Project.java:

```
package ass1_21mic0131;

public class Project {

    private String title;

    private int teamSize;

    public Project(String title, int teamSize) throws TeamSizeExceedException {

        if (teamSize > 4) {

            throw new TeamSizeExceedException("Team size cannot exceed 4");

        }

        this.title = title;

        this.teamSize = teamSize;

    }

}
```

7) Student.java :

```
package ass1_21mic0131;
```

```
import java.util.ArrayList;
```

```
import java.util.List;
```

```
public class Student {
```

```
    private List<Course> courses = new ArrayList<>();
```

```
    private List<Project> projects = new ArrayList<>();
```

```
    private int totalCredits = 0;
```

```
    public void registerCourse(Course course) throws CourseException {
```

```
        if (courses.size() >= 5) {
```

```
            throw new CourseException("Maximum courses exceeded");
```

```
        }
```

```
        courses.add(course);
```

```
        totalCredits += 4;
```

```
    }
```

```
    public void registerProject(Project project) throws TeamSizeExceedException {
```

```
        if (project != null) {
```

```
            projects.add(project);
```

```
        }
```

```
    }
```

```
    public void displayReport() {
```

```
        System.out.println("Registered Courses:");
```

```
        for (Course course : courses) {
```

```
            System.out.println(course);
```

```
        }
```

```

        System.out.println("Registered Projects:");
        for (Project project : projects) {
            System.out.println(project);
        }
        System.out.println("Total Credits: " + totalCredits);
    }

    public void checkCredits() throws CreditException {
        if (totalCredits < 10) {
            throw new MinCreditException("Minimum credits not met");
        }
        if (totalCredits > 20) {
            throw new CreditException("Maximum credits exceeded");
        }
    }
}

```

8) TeamSizeExceedException.java :

```

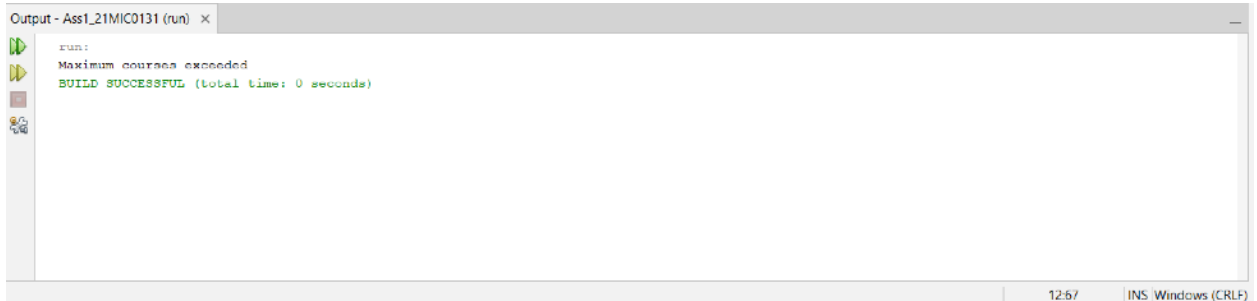
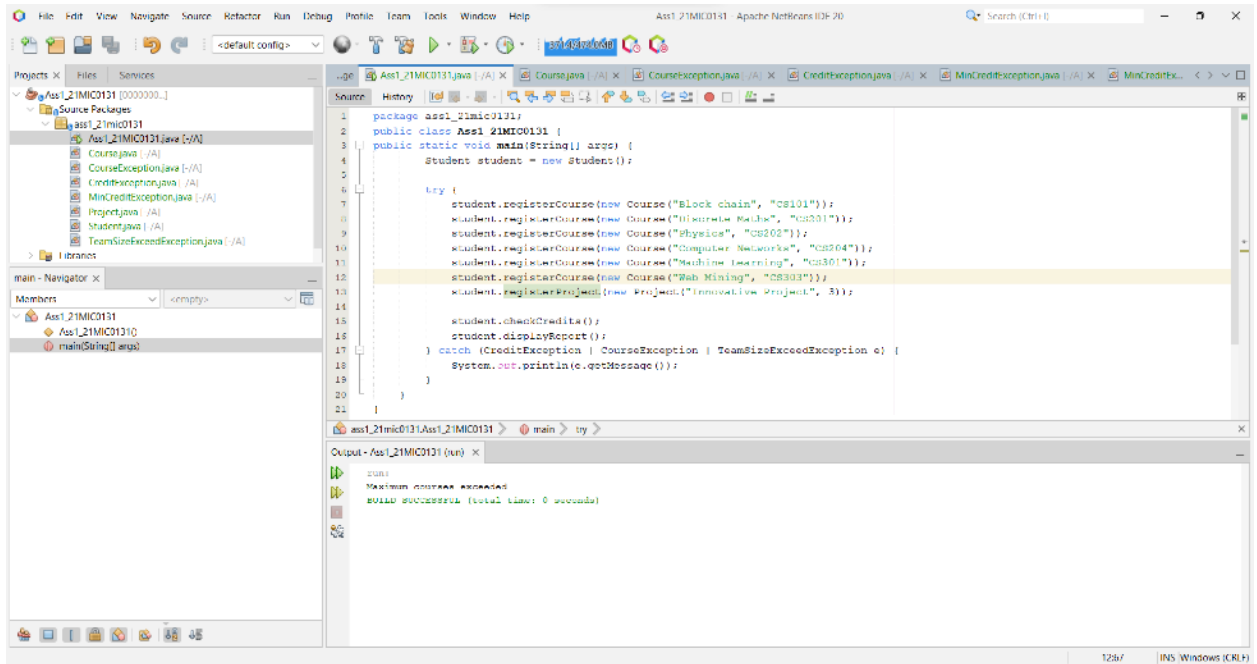
package ass1_21mic0131;

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

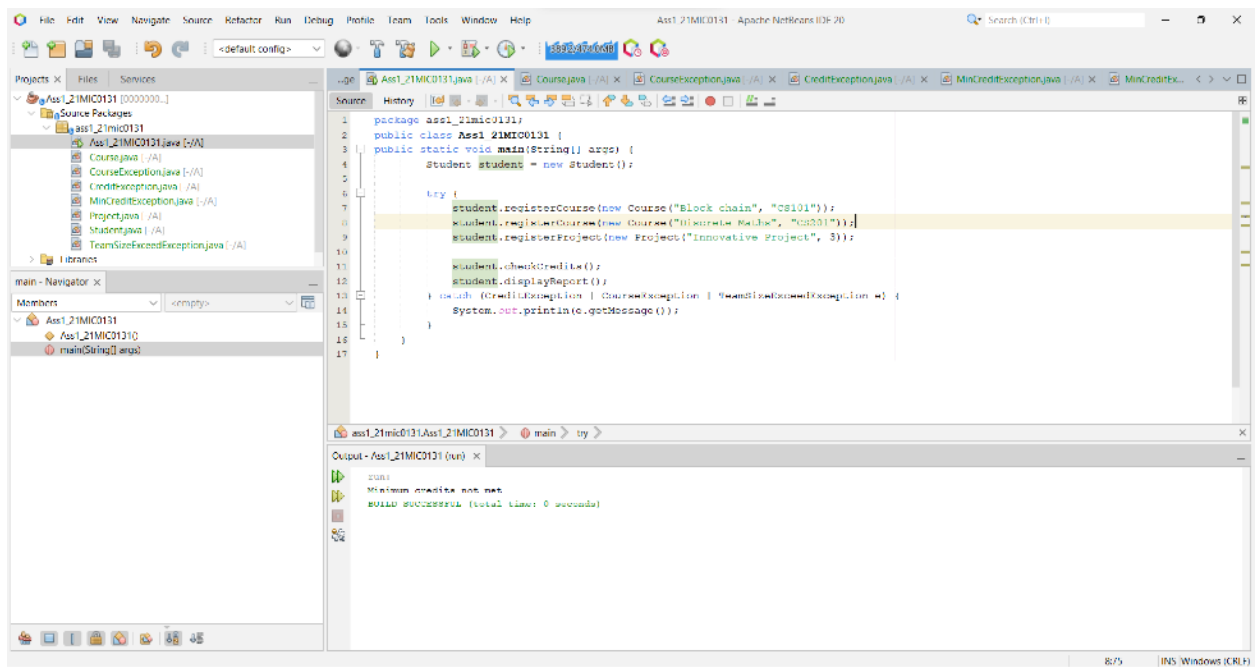
```

# Screenshots

## Result 1 : Exceed Course Exception

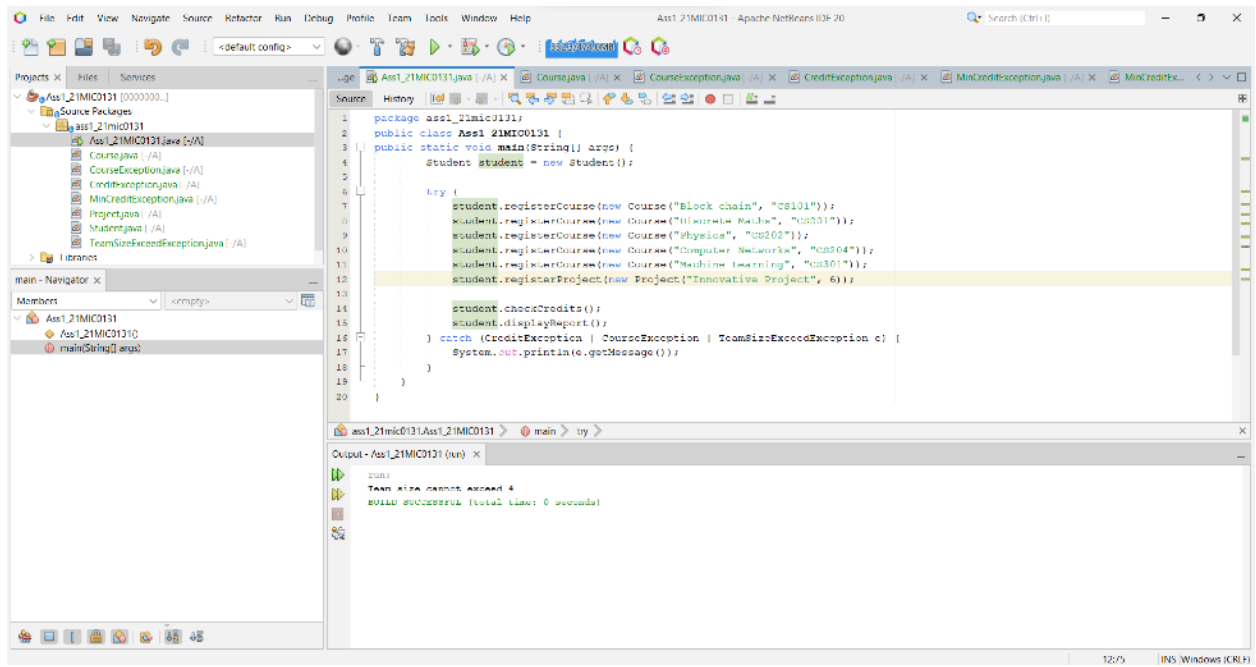


## Result 2: Minimum Credit Exception

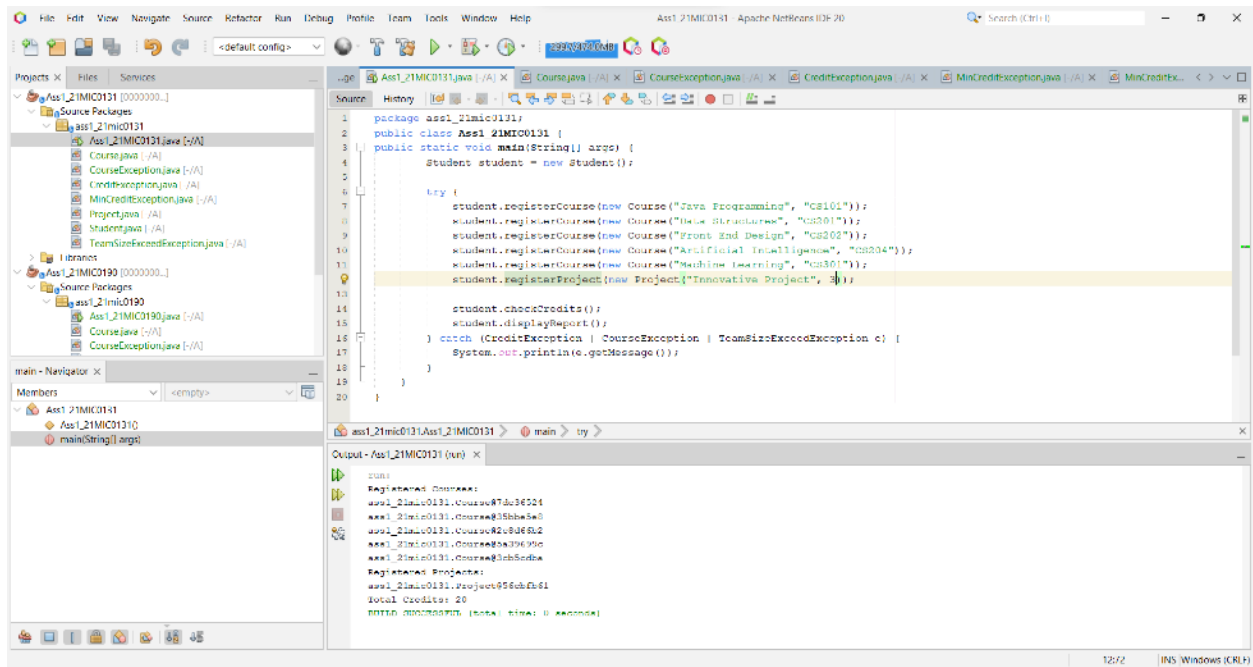




### Result 3 : Team Size Exceed Exception



## Result 4 : Report



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