

## Student Management System

SMS is a console based application which supports to manage the student marks details in a file in the local drive.

### Topics / Concepts

- Java language fundamentals
  - data types,
  - conditional statements
  - looping statements
  - jump statements
  - arrays
  - passing & return array from and to a function
- OOPs concepts
  - class & object,
  - constructor, overloaded constructor
  - static function and data members,
  - data encapsulation
  - data abstraction
- Packages
  - custom packages
  - built in packages
- Exception handling
  - try catch blocks
  - custom exception
- File handling
  - FileInputStream & FileOutputStream
  - ObjectInputStream & ObjectOutputStream
  - Serialization
- Collection framework
  - Hashtable
  - Generic in collection classes
  - Enumeration

## **Files in SMS**

### **StudentManagement.java**

→ menu based console application to do the CRUD operation on student data

### **StudentHandler.java**

→ provides functions to read, display, update and delete a student details

### **StudentIO.java**

interface with abstract functions to read and display student details

### **Student.java**

→ entity class with required getter and setter methods

→ implements the Interface StudentIO & Serializable

### **FileHelper.java**

→ provides functions to read and write student objects into a File

### **Helper.java**

→ provides utility functions to read an integer, double and string values from console.

→ provides function to read valid marks from the console.

### **MOBException.java**

→ custom exception (Mark Out of Bound Exception)

→ used to accept marks between a range (0-100)

## Sample Output

```
(base) saravananm:case_study saravanan$ java keltron.sms.StudentManagement
```

```
~~~~~  
~~ Student mangement System ~~  
~~~~~
```

1. Add a new Student
2. Remove a Student
3. Edit a Student
4. Display a Student
5. Display all Student
6. Exit

```
~~~~~
```

Enter the option (1-6)

1

Enter the new Student details

Enter the Register Number :5

Enter the Name :Kumar

Enter Subject 1 mark :

100

Enter Subject 2 mark :

55

Enter Subject 3 mark :

65

Student details added successfully

```
~~~~~
```

Enter the option (1-6)

3

Enter the details of Student to be updated

Enter the Register Number :5

Enter the Name :Kumar

Enter Subject 1 mark :

45

Enter Subject 2 mark :

67

Enter Subject 3 mark :

78

Student details updated successfully

```
~~~~~
```

Enter the option (1-6)

4

Enter the roll no of Student to be viewed

101

\*\*\*\*\* Student details \*\*\*\*\*

Register Number :101

Student Name :Kumar

Subject 1 mark :55

Subject 2 mark :60

Subject 3 mark :50

Total :165

Result :PASS

Average :55.0

PASS\_MARK :50

\*\*\*\*\*

```
~~~~~
```

```
Enter the option (1-6)
5
Register Number :5
Student Name :Kumar
Subject 1 mark :45
Subject 2 mark :67
Subject 3 mark :78
Total :190
Result :FAIL
Average :63.0
PASS_MARK :50
*****
Register Number :101
Student Name :Kumar
Subject 1 mark :55
Subject 2 mark :60
Subject 3 mark :50
Total :165
Result :PASS
Average :55.0
PASS_MARK :50
*****
```

```
Enter the option (1-6)
2
Enter the Register Number of the Student to be removed
102
There is no student with this Register Number
~~~~~
~~ Student mangement System ~~
~~~~~
1. Add a new Student
2. Remove a Student
3. Edit a Student
4. Display a Student
5. Display all Student
6. Exit
~~~~~
Enter the option (1-6)
101
Enter the correct option (1-6)
~~~~~
```

```
~~~~~
Enter the option (1-6)
2
Enter the Register Number of the Student to be removed
101
Student details removed successfully
```