Main Flow

```
Start
  ↓
Display menu
  ↓
Read option
  ↓
Switch
  ↓
Case 1. Call createClassList()  → (1)
  ↓
Case 2. Call provideMarks()  → (2)
  ↓
Case 3. Call getGradeStats()  → (3)
  ↓
Case 4. Display "Exiting program"
  ↓
Default. Display "Invalid option selected. Try again"
  ↓
End
```

(1) createClassList

```
Display "Enter student IDs for all the students enrolled in the class (Enter 'q' to stop):"
  ↓
Do
  ↓
Display "Student ID: "
  ↓
Get user input for studentId
  ↓
Is studentId = "q"?  — Yes → Display "Class list created successfully" → Return
  │ No
  ↓
Add studentId to classList
```

(2) provideMarks

```
Check if classList is empty  — Yes → Display "No class list found. Please create a class list first." → Return
  │ No
  ↓
Display "Enter the subject for which you want to provide marks:"
  ↓
For i = 0 to length of subjects
  ↓
Display subjects
  ↓
Try block start. Display "Enter option:"
  ↓
Parse the entered option as subjectIndex
  ↓
Is subjectIndex is less than 0 or greater than or equal to subjects length  — Yes → "Invalid subject selected. Try again." → Return
  │ No
  ↓
(orange connector)
```

(orange) continued

```
Display Max score in chosen subject and enter between 0 to the max score
  ↓
For each studentId in classList
  ↓
While input is not valid
  ↓
Display "Enter marks for student"
  ↓
Parse the entered marks as marks
  ↓
Is marks is less than 0 or greater than totalMarks[subjectIndex]  — Yes → Display "Invalid marks. Try again." → End inner loop
  │ No
  ↓
Assign marks to tempStudentMarks
  ↓
End inner loop
  ↓
End outer loop
  ↓
Display "Marks provided successfully"
Display "Do you want to see the marks entered? yes or no"
  ↓
Parse the entered option as option
  ↓
Is option is equal to "yes" (ignoring case)  — Yes → For i = 0 to length of classList / Print student marks → End inner loop
  │ No
  ↓
End if
  ↓
End Try. Catch exception Display "Invalid input. Try again"
  ↓
Return
```

(3) getGradeStats

```
For loop
  ↓
Calculate percentmarks
  ↓
End for
  ↓
For loop
  ↓
Is percent mark within grade boundary?  — Yes → Whichever grade +1 to count
  │ No
  ↓
End for
  ↓
set sum, minimum, maximum
  ↓
For loop
  ↓
Add percentmarks to sum
  ↓
Is percentmarks < minimum?  — Yes → Set minimum to percentmarks
  │ No
  ↓
End IF
  ↓
Is percentmarks > maximum?  — Yes → Set maximum to percentmarks
  │ No
  ↓
End IF
  ↓
End for
  ↓
(green connector)
```

(green) continued

```
Calculate class average
  ↓
Calculate range
  ↓
Calculate Standard deviation
  ↓
Print subject, marks, all students and their grades, class average, standard deviation, minimum, maximum, and range
  ↓
Return
```