CSIT121 Lab Exercises

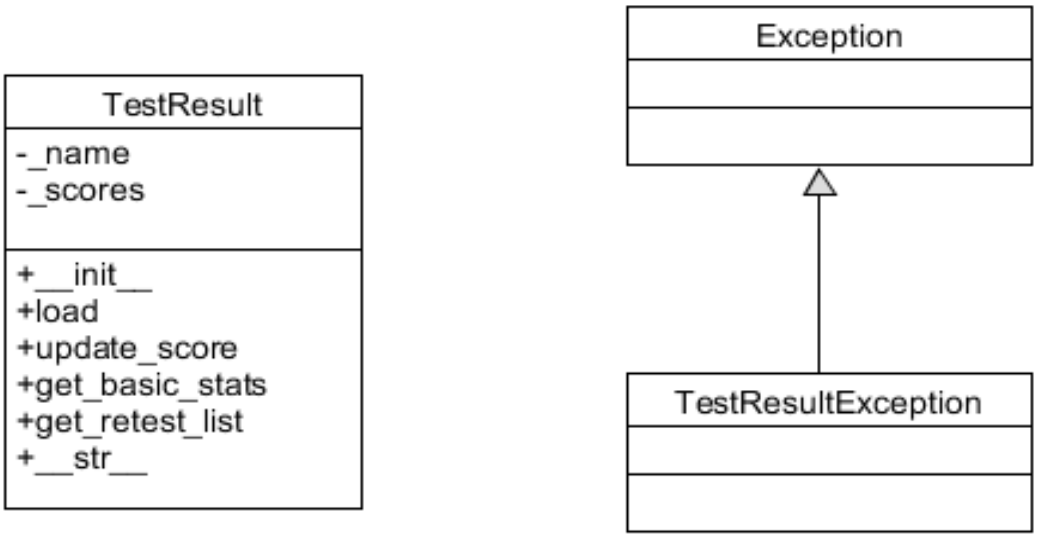
Lab 4

Objectives

- Get familiar with file I/O.
- Get familiar with exception handling.

You are required to design and implement a test result management system using OOP. The basic class design of the system is given below. You can make reasonable adjustments to the basic design or have a different design.

You should include reasonable get/set methods for each class. You should define main and other helper functions to test the classes.



Class: TestResultException inherits Exception

Attribute	Description
Nil	
Method	
Nil	

Class: TestResult

Attribute	Description
name	Test name. For instance, "Math Entry Test 2023".
scores	Dictionary of cadidate id (key) and mark (value).

Method	
__init__	To initialise name and scores (empty dictionary).
load	To read the test data (candidate id, mark) from a data file, and save into the scores dictionary. The method will raise TestResultException if the mark is not within 0 ~ 100.
update_score	To update the score of a candidate. The method will raise TestResultException if the mark is not within 0 ~ 100.
get_basic_stats	To return the lowest, highest and the average mark in a string.
get_retest_list	To identify candidates who must retake the test (mark < 50), and save the data (cadidate id, mark) to a file.
__str__	To return a string containing the test name and the number of candidates passing the test.

Input file.

```
Math Test 2023
c1,80
c2,70
c3,65
c4,58
c5,76
c6,50
c7,67
c8,70
c9,70
c10,60
c11,XX
c12,90
c13,yy
c14,78
c15,45
c16,49
c17,44
c18,101
c19,-10
c20,-90
c21,87
c22,78
```

Output file.

```
c15  45
c16  49
c17  44
```