Practice 23 – SE-DS File + Nested Loop

Task 01: Create two files with the names "matrix_set1" and "matrix_set2". Both files will contain 10 matrices of different dimensions. However, the corresponding matrices in both files should have same dimensions. For example, if matrix 2 in file 1 has dimensions 3 x 5, then matrix 2 in file 2 should have dimensions 3 x 5.

Write code to create these file. The matrix dimension can vary from 2 to 6, where rows and columns can be different or same. Write elements of each matrix in random 0 to 9 both including.

Sample File 1:

```
10          There are 10 matrices
2           First matrix has 2 rows
3           First matrix has 3 columns
2
7
3
6
9
3
3           Second matrix has 3 rows
...
```

Task 02: Read two files created in task 01 and create two more matrices with the names "sum.txt" and "diif.txt". Read previous two matrices and store their sum in "sum.txt" and difference in file "diff.txt".

```
10
2
3
...
```

Task 03: Consider file "marks.txt" for next tasks. The file contains marks of 5000 students. Some students fail to appear in the exam. If you open file in note pad and search -2, you will find some values just next to the roll no, showing that these students have not appeared in the exam.

Another thing is some students fail to appear in some subject only. The value -1 indicates that student has not given the exam of the subject. You are required to do following tasks:

- **a.** Read the file and count how many students have given the exam
- **b.** Input roll no, search if student has failed to appear in the exam, print appropriate message. Otherwise, print the marks of the student. If he/ she has not appeared in some subject, give message in front of the subject. Also, calculate the average marks of the student (calculate average out of the subjects, student has appeared)
- **c.** Read the file and count and print how many students have appeared in all subjects
- **d.** Read the file and count how many students have appeared in all subjects. Open another file for writing with name "marks_appear.txt". Write the count of appeared students on top of the file. Reopen the previous file and copy roll no and marks of the students in new file, for students who have appeared in all the exams
- **e.** Read the file and count how many students have not appeared in the exams. Open another file for writing with name "absent.txt". Write the count of absent students on top of the file. Next, write only the roll nos of students, who have not appeared in the exams
- **f.** Read the file and count students who have not appeared in all exams. Open another file for writing with name "marks_absent.txt". Write the count of such students on top of the file. Next, write roll nos and marks of students who have not appeared in all the exams