

Program: To create class Student with rno, name, marks as instance variable and constructor to initialize these instance variables. Instantiate n instances of classes and save details in list. Create an user defined exception class Fail to raise an exception if marks is less than 40. Display details of students and also raise exceptions for marks less than 40.

```
class Student:
```

```
    stu_count = 0
```

```
    def __init__(self):
```

```
        self.r_no = input("Enter the Student roll number : ")
```

```
        self.name = input("Enter the name : ")
```

```
        self.marks = input("Enter the marks : ")
```

```
    def Fail(Exception):
```

```
        """Student scored less marks Fail!!!!"""
```

```
    @classmethod
```

```
    def set_stu_count(self):
```

```
        while 1:
```

```
            try:
```

```
                self.stu_count = int(input('Enter the total number of Students :'))
```

```
                return self.stu_count
```

```
            except:
```

```
                print("Invalid input!!")
```

```
                continue
```

```
n = Student.set_stu_count()
```

```
a = []
```

```
print("Enter the Details of Students:")
```

```
for i in range(0, n):
```

```
    stu = Student()
```

```
    a.append(stu)
```

```

print("Details of Students are:")
print("Roll No.\tName\tMarks")

for i in range(0, n):
    print(f"{a[i].r_no} \t\t {a[i].name} \t {a[i].marks}")
print("Details after checking grades:")

for i in range(0, n):
    try:
        if (int(a[i].marks) < 40):
            raise Fail
    except:
        print(f"{a[i].r_no} \t\t {a[i].name} \t F")
    else:
        print(f"{a[i].r_no} \t\t {a[i].name} \t {a[i].marks}")

```

OUTPUT:

```

Enter the total number of Students :3
Enter the Details of Students:
Enter the Student roll number : 25
Enter the name : Niyati
Enter the marks : 78
Enter the Student roll number : 12
Enter the name : Namita
Enter the marks : 35
Enter the Student roll number : 65
Enter the name : Kaveri
Enter the marks : 49

```

Details of Students are:

Roll No.	Name	Marks
25	Niyati	78
12	Namita	35
65	Kaveri	49

Details after checking grades:

25	Niyati	78
12	Namita	F
65	Kaveri	49

Python program to create a file ,count no. of lines , words and characters in a file.Write content of a file in a new file and read that new file.

```
import os

def print_directories(directory_list):
    i = 0
    print("\nSr. No. \t Directory")
    for directory in directory_list:
        print(i, "\t\t", directory)
        i += 1

path= os.getcwd()
print(f"The current working directory is: {path}")

dir_list= os.listdir(path)
print("\n List of directories and files before creation:")
print_directories(dir_list)

with open("my_file.txt", 'w') as f:
    f.write("This is my_file.txt\n")
    for i in range(10):
        f.write(f"Line number {i + 1}. \n")
```

```

dir_list= os.listdir(path)
print("\n List of directories and files after creation:")
print_directories(dir_list)
def print_details_of_file(file_content):
    line_count, word_count, char_count = 0, 0, 0

    line_list = file_content.split("\n")
    line_count = len(line_list)

    for line in line_list:
        word_list = line.split()
        word_count += len(word_list)

    char_count = len(file_content)

    print("The file contents are :\n" + f"\n{file_content}")
    print(f"Line Count :\t {line_count}")
    print(f"Word Count :\t {word_count}")
    print(f"Char Count :\t {char_count}")

with open("my_file.txt", 'r') as f:
    file_content = f.read()
    print_details_of_file(file_content)

```

OUTPUT:

The current working directory is: C:\Engineering\2nd Year\Sem 4\Python\Practicals

List of directories and files before creation:

Sr. No.	Directory
0	Exp1.py
1	EXP2.py

- 2 Exp2b.py
- 3 Exp3.py
- 4 Exp4.py
- 5 EXP5b.py
- 6 EXP5c.py
- 7 exp6.py
- 8 operations.py
- 9 siya.py
- 10 tempCodeRunnerFile.py

List of directories and files after creation:

Sr. No.	Directory
0	Exp1.py
1	EXP2.py
2	Exp2b.py
3	Exp3.py
4	Exp4.py
5	EXP5b.py
6	EXP5c.py
7	exp6.py
8	my_file.txt
9	operations.py
10	siya.py
11	tempCodeRunnerFile.py

The file contents are :

This is my_file.txt

Line number 1.

Line number 2.

Line number 3.

Line number 4.

Line number 5.

Line number 6.

Line number 7.

Line number 8.

Line number 9.

Line number 10.

Line Count : 12

Word Count : 33

Char Count : 181

Program to create a class Customer with id, name, mobile number as instance variable and constructor to initialize these instance variables. Instantiate n instances of classes. Save details of all customer in a file and read back from that file.

```
class Customer:
```

```
    def __init__(self, ID, name, mobile_num):
```

```
        self.ID = ID
```

```
        self.name = name
```

```
        self.mobile_num = mobile_num
```

```
    def add_content_to_file(self):
```

```
        with open("customer_details.txt", 'a') as f:
```

```
            f.write(f'{self.ID}, {self.name}, {self.mobile_num}\n')
```

```
@classmethod
```

```
def print_content_of_file(cls):
```

```
    with open("customer_details.txt", 'r') as f:
```

```
        file_content = f.read()
```

```
    print("\nThe file content:\n + f'\n {file_content}' )
```

```
n = int(input('Enter Number of Customers below:-\n'))
```

```
for i in range(n):
```

```
    customer_name = input('\nEnter customer name: ')
```

```
customer_number = input('Enter customer number: ')
customer_instance = Customer(i + 1, customer_name, customer_number)
customer_instance.add_content_to_file()
```

```
Customer.print_content_of_file()
```

OUTPUT:

Enter Number of Customers below:-

2

Enter customer name: Niyati

Enter customer number: 44

Enter customer name: Siya

Enter customer number: 55

The file content:

1, abc, 24

2, pqr, 22

1, xyz, 30

2, six, 6

3, five , 5

1, Niyati, 5

2, Siya, 8

1, Niyati, 44

2, Siya, 55

Python program to create directories using mkdir() and makedirs (),remove directories using

```
import os
current_dir=os.getcwd()
print(f"Current working directory is: {current_dir}")
os.mkdir("Python_trial")
print("Directories after adding directory:")
```

```

print(os.listdir(current_dir))

os.makedirs("Python_trial/Exp1/PartA/A1")

print("Directories after recursively adding directory:")

print(os.listdir(current_dir))

os.rmdir("Python_trial/Exp1/PartA/A1")

print("Directories after removing directory:")

print(os.listdir(current_dir))

os.chdir(r"C:\\Engineering\\2nd Year\\Sem 4\\AOA")

new_dir= os.getcwd()

print(f"The changed working directory is: {new_dir}")

```

Output:

Current working directory is: C:\Engineering\2nd Year\Sem 4\Python\Practicals

Directories after adding directory:

```

['customer_details.txt', 'Exp1.py', 'EXP2.py', 'Exp2b.py', 'Exp3.py', 'Exp4.py', 'EXP5b.py', 'EXP5c.py',
'exp6.py', 'EXP7.py', 'my_file.txt', 'my_packages', 'operations.py', 'Python_trial', 'siya.py',
'tempCodeRunnerFile.py', '__pycache__']

```

Directories after recursively adding directory:

```

['customer_details.txt', 'Exp1.py', 'EXP2.py', 'Exp2b.py', 'Exp3.py', 'Exp4.py', 'EXP5b.py', 'EXP5c.py',
'exp6.py', 'EXP7.py', 'my_file.txt', 'my_packages', 'operations.py', 'Python_trial', 'siya.py',
'tempCodeRunnerFile.py', '__pycache__']

```

Directories after removing directory:

```

['customer_details.txt', 'Exp1.py', 'EXP2.py', 'Exp2b.py', 'Exp3.py', 'Exp4.py', 'EXP5b.py', 'EXP5c.py',
'exp6.py', 'EXP7.py', 'my_file.txt', 'my_packages', 'operations.py', 'Python_trial', 'siya.py',
'tempCodeRunnerFile.py', '__pycache__']

```

The changed working directory is: C:\Engineering\2nd Year\Sem 4\AOA