

```
1- class student_mark():
2-     def __init__(self,sub1,sub2,sub3,name,cont):
3-         self.name=name
4-         self.sub1=sub1
5-         self.sub2=sub2
6-         self.sub3=sub3
7-         self.cont=cont
8-     def getm(self):
9-         self.sub1=int(input("Enter marks of subject 1: "))
10-        self.sub2=int(input("Enter marks of subject 2: "))
11-        self.sub3=int(input("Enter marks of subject 3: "))
12-        self.cont=input("Enter contact")
13-        self.name=input("Enter Name ")
14-        self.mean=(self.sub1+self.sub3+self.sub2)/3
15-    def showres(self):
16-        if self.mean>50:
17-            print( self.name + " has PASSED, has contact no. ",self.cont)
18-        else:
19-            print( self.name + " has FAILED has contact no. ",self.cont)
20- x=student_mark(1,2,3,'abc',87)
21- x.getm()
22- x.showres()
```

input

```
Enter marks of subject 1: 98
Enter marks of subject 2: 88
Enter marks of subject 3: 90
Enter contact8999300859
Enter Name Devanshu Surana
Devanshu Surana has PASSED, has contact no.  8999300859
```

```
1- class student():
2-     def __init__(self,name,contact):
3-         self.name=name
4-         self.contact=contact
5-
6-     def getd(self):
7-         self.name=input("Enter name: ")
8-         self.contact=input("Enter contact: ")
9-     def outd(self):
10-        print('The name is: ',self.name," The contact number is: ",self.contact)
11- p=student('abc',9867)
12- p.getd()
13- p.outd()
```

input

```
Enter name: Devanshu Surana
Enter contact: 8999300859
The name is:  Devanshu Surana  The contact number is:  8999300859
```

## Python Programming Lab Assignment 6

Problem Statement: object oriented programming concepts to display students grade as pass or fail.

Aim: Write a program to read 3 subject marks and display pass or failed using class and object.

Objectives: To learn and implement concepts of object oriented programming in python.

### Theory:

1. Explain object oriented programming in python.  
→ object oriented programming is a programming paradigm that provides a means of structuring programs so that properties and behaviours are bundled into individual objects.
2. Explain `-init-` method.  
→ In an object oriented programming approach, the `init` method is the python equivalent of the `c++` constructor. Every time a object is created from a class, the `init` function is called.
3. Explain the concept of Inheritance and polymorphism.  
→ Inheritance: It is the one in which a new class is created that inherits the properties of the already existing class. Types of Inheritance are single inheritance, multi-level inheritance, multiple inheritance, hybrid inheritance and hierarchical inheritance.

## Polymorphism

Polymorphism is that in which we can perform a task in multiple forms or ways. It is applied to the functions or methods. Types of polymorphism are compile time polymorphism, and run-time polymorphism.

Platform: Windows / Python - Editor (Jupyter)

## Conclusion

Studied oop in python and classes and objects are used to display students grade as pass/fail.

## FAQ's

ans 1. Procedural Oriented Programming

Divided into small parts called function

Follows a top-down approach

No access specifier

Based on unreal world

Object oriented programming

Divided into small parts called objects.

Follows a bottom-up approach

Has access specifier

Based on real world.

ans 2. A superclass is the class from which many subclasses can be created. The subclasses inherit the characteristic of a superclass. Also known as parent class or base class.

ans 3. Instance variables.

A class variable without a static modifier and is usually shared by all class instances.

Class variables.

A static variable can be declared anywhere at class level. with static.



Tied to a particular object instance of the class.	Not tied to a particular object of the class.
The contents of an instance variable are totally independent of one object instance to others.	Shared across all objects of the class.

ans 4. A self parameter is a reference to the current instance of the class, and is used to access variables that belongs to the class.