**OOPS CONCEPTS - ENCAPSULATION**

**ENCAPSULATION**

Encapsulation is about protecting the properties and functionalities of an object from other objects.

In other words, writing the data and code into one single unit.

**Code:**

class **Student**:

#CONSTRUCTOR

def **\_\_init\_\_**(*self*, id, name, mar):

*self*.\_\_studId = id

*self*.\_\_studName=name

*self*.\_\_studMarks=mar

def **displayStud**(*self*):

print(*"Student Id : "*,*self*.\_\_studId)

print(*"Student Name : "*, *self*.\_\_studName)

print(*"Student Marks : "*, *self*.\_\_studMarks)

if(*self*.\_\_studMarks > 300):

print(*"Student Result : PASS"*)

else:

print(*"Student REsult : FAIL"*)

stud= Student(101,*"Kumar"*,375)

stud.displayStud()

print(*"======================="*)

stud1= Student(102,*"Kamal"*,275)

stud1.displayStud()

**Output:**

Student Id : 101

Student Name : Kumar

Student Marks : 375

Student Result : PASS

=======================

Student Id : 102

Student Name : Kamal

Student Marks : 275

Student REsult : FAIL

In Python, we can access the private fields by using the below syntax:

<object name><dot><\_Class Name><dot><\_\_variable name>

Eg: st = Student()

st.\_Student.\_\_studId

This process is called Name Mandling.

**IMPLEMENTING ENCAPSULATION USING GETTER AND SETTER**

**Code:**

class **Student**:

#IMPLEMENTING ENCAPSULATION USING GETTER AND SETTER

def **setStudentId**(*self*,sId):

*self*.studId=sId

def **getStudentId**(*self*):

return *self*.studId

def **setStudentName**(*self*,snm):

*self*.studName=snm

def **getStudentName**(*self*):

return *self*.studName

def **setStudentMarks**(*self*,sma):

*self*.studMarks=sma

def **getStudentMarks**(*self*):

return *self*.studMarks

stud1 = Student()

stud1.setStudentId(1001)

stud1.setStudentName(*"Jerrick"*)

stud1.setStudentMarks(375)

print(stud1.getStudentId())

print(stud1.getStudentName())

print(stud1.getStudentMarks())

print(*"============================"*)

stud2 = Student()

stud2.setStudentId(1002)

stud2.setStudentName(*"Jazlyn"*)

stud2.setStudentMarks(425)

print(stud2.getStudentId())

print(stud2.getStudentName())

print(stud2.getStudentMarks())

**Output:**

1001

Jerrick

375

============================

1002

Jazlyn

425

**QUIZ**

**A screenshot of a computer

Description automatically generated**

**A screenshot of a computer

Description automatically generated**

**A screenshot of a computer

Description automatically generated**

**A screenshot of a computer

Description automatically generated**

**A screenshot of a computer

Description automatically generated**

**ASSIGNMENT**

**Code:**

class **Patients**:

#IMPLEMENTING ENCAPSULATION USING GETTER AND SETTER

def **setPatientId**(*self*,patId):

*self*.patientId=patId

def **getPatientId**(*self*):

return *self*.patientId

def **setPatientName**(*self*,patNam):

*self*.patientName=patNam

def **getPatientName**(*self*):

return *self*.patientName

def **setPatientPPSN**(*self*,ppsn):

*self*.patientPPSN=ppsn

def **getPatientPPSN**(*self*):

return *self*.patientPPSN

pat1 = Patients()

pat1.setPatientId(101758)

pat1.setPatientName(*"Kamal Kumar"*)

pat1.setPatientPPSN(*"1024578XV"*)

print(*"Patient ID : "*, pat1.getPatientId())

print(*"Patient Full Name : "*, pat1.getPatientName())

print(*"Patient PPSN : "*, pat1.getPatientPPSN())

**Output:**

Patient ID : 101758

Patient Full Name : Kamal Kumar

Patient PPSN : 1024578XV