**Practical 2**

**Aim:** Store the basic information about students such as roll no, name, date of birth, and address of student using various collection types such as List, Set and Map

**✅ 1. Class Definition and Constructor**

class Student:

def \_\_init\_\_(self, name, rollno, m1, m2):

self.name = name

self.rollno = rollno

self.m1 = m1

self.m2 = m2

**class Student: — Declares a class named Student.**

**\_\_init\_\_ method — This is the constructor that initializes the name, rollno, and two marks (m1, m2) when a Student object is created.**

**self — Refers to the current object instance.**

**✅ 2. Method to Add New Student**

def accept(self, Name, Rollno, marks1, marks2):

ob = Student(Name, Rollno, marks1, marks2)

ls.append(ob)

**accept(...): A method to add a student.**

**ob = Student(...): Creates a new Student object with the given details.**

**ls.append(ob): Adds that object to the global list ls.**

**✅ 3. Display a Student's Data**

def display(self, ob):

print("Name : ", ob.name)

print("RollNo : ", ob.rollno)

print("Marks1 : ", ob.m1)

print("Marks2 : ", ob.m2)

print("\n")

**display(ob): Accepts a Student object ob and prints its data.**

**✅ 4. Search a Student by Roll Number**

def search(self, rn):

for i in range(ls.\_\_len\_\_()):

if(ls[i].rollno == rn):

return i

**Searches the list ls for a student with roll number rn.**

**Returns the index of the student if found.**

**✅ 5. Delete a Student**

def delete(self, rn):

i = obj.search(rn)

del ls[i]

**Uses the search() method to find the student index.**

**del ls[i]: Deletes that student from the list.**

**✅ 6. Update a Student's Roll Number**

def update(self, rn, No):

i = obj.search(rn)

roll = No

ls[i].rollno = roll

**Searches for student with roll number rn.**

**Updates their roll number to No.**

**✅ 7. Global List and Object Creation**

ls = []

obj = Student('', 0, 0, 0)

**ls: A global list to store all student records.**

**obj: A dummy object of Student class used to access its methods.**

**✅ 8. Print Menu of Operations**

print("\nOperations used, ")

print("\n1.Accept Student details\n2.Display Student Details\n3.Search Details of a Student\n4.Delete Details of Student\n5.Update Student Details\n6.Exit")

**Displays the operations the program can perform.**

**✅ 9. Add 3 Students Manually**

obj.accept("A", 1, 100, 100)

obj.accept("B", 2, 90, 90)

obj.accept("C", 3, 80, 80)

**Adds three students with names A, B, C and their roll numbers and marks.**

**✅ 10. Display All Students**

print("\nList of Students\n")

for i in range(ls.\_\_len\_\_()):

obj.display(ls[i])

**Iterates over the student list and displays all records.**

**✅ 11. Search and Display Student with Roll No. 2**

print("\n Student Found, ")

s = obj.search(2)

obj.display(ls[s])

**Finds and displays the student with roll number 2.**

**✅ 12. Delete Student with Roll No. 2**

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**obj.delete(2)**

**print(ls.\_\_len\_\_())**

**print("List after deletion")**

**for i in range(ls.\_\_len\_\_()):**

**obj.display(ls[i])**

**Deletes student with roll number 2.**

**Displays the updated list and length of the list.**

**✅ 13. Update Student Roll Number from 3 to 2**

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**obj.update(3, 2)**

**print(ls.\_\_len\_\_())**

**print("List after updation")**

**for i in range(ls.\_\_len\_\_()):**

**obj.display(ls[i])**

**Changes the roll number of student from 3 to 2.**

**Displays updated student list.**

**✅ 14. Exit Message**

print("Thank You !")

**Prints a final thank-you message.**

**# This is simplest Student data management program in python**

**# Create class "Student"**

**class Student:**

**# Constructor**

**def \_\_init\_\_(self, name, rollno, m1, m2):**

**self.name = name**

**self.rollno = rollno**

**self.m1 = m1**

**self.m2 = m2**

**# Function to create and append new student**

**def accept(self, Name, Rollno, marks1, marks2):**

**# use ' int(input()) ' method to take input from user**

**ob = Student(Name, Rollno, marks1, marks2)**

**ls.append(ob)**

**# Function to display student details**

**def display(self, ob):**

**print("Name : ", ob.name)**

**print("RollNo : ", ob.rollno)**

**print("Marks1 : ", ob.m1)**

**print("Marks2 : ", ob.m2)**

**print("\n")**

**# Search Function**

**def search(self, rn):**

**for i in range(ls.\_\_len\_\_()):**

**if(ls[i].rollno == rn):**

**return i**

**# Delete Function**

**def delete(self, rn):**

**i = obj.search(rn)**

**del ls[i]**

**# Update Function**

**def update(self, rn, No):**

**i = obj.search(rn)**

**roll = No**

**ls[i].rollno = roll**

**# Create a list to add Students**

**ls = []**

**# an object of Student class**

**obj = Student('', 0, 0, 0)**

**print("\nOperations used, ")**

**print("\n1.Accept Student details\n2.Display Student Details\n3.Search Details of a Student\n4.Delete Details of Student\n5.Update Student Details\n6.Exit")**

**# ch = int(input("Enter choice:"))**

**# if(ch == 1):**

**obj.accept("A", 1, 100, 100)**

**obj.accept("B", 2, 90, 90)**

**obj.accept("C", 3, 80, 80)**

**# elif(ch == 2):**

**print("\n")**

**print("\nList of Students\n")**

**for i in range(ls.\_\_len\_\_()):**

**obj.display(ls[i])**

**# elif(ch == 3):**

**print("\n Student Found, ")**

**s = obj.search(2)**

**obj.display(ls[s])**

**# elif(ch == 4):**

**obj.delete(2)**

**print(ls.\_\_len\_\_())**

**print("List after deletion")**

**for i in range(ls.\_\_len\_\_()):**

**obj.display(ls[i])**

**# elif(ch == 5):**

**obj.update(3, 2)**

**print(ls.\_\_len\_\_())**

**print("List after updation")**

**for i in range(ls.\_\_len\_\_()):**

**obj.display(ls[i])**

**# else:**

**print("Done!")**