

```
lab3 > q1.py
Project
  q1.py
  1 class Student:
  2     def std_info(self):
  3         self.name=input("Enter the name of student: ")
  4         self.roll_no=input("Enter roll no. of student: ")
  5         self.email_address=input("Enter the email address: ")
  6
  7     def courses(self):
  8         self.no_of_courses=int(input("Enter the no. of courses: "))
  9         self.course_credithr_dict={}
10         for i in range(self.no_of_courses):
11             self.courses_name=input("Enter the name of your course: ")
12             self.credithr=int(input("Enter the credit hours of this course: "))
13             self.course_credithr_dict[self.courses_name]=self.credithr
14
15     def calculate_gpa(self):
16         self.courses_gpa_dict = {}
17         self.sum_of_credit_hrs = 0
18         for j in self.course_credithr_dict:
19             self.sum_of_credit_hrs += self.course_credithr_dict[j]
20             course_marks = int(input(f'Enter marks of {j} : '))
21             if 85 <= course_marks <= 100:
22                 self.courses_gpa_dict[j] = 4.0
23
24             if 80 <= course_marks <= 84:
```

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  25         self.courses_gpa_dict[j] = 3.7
  26
  27         if 75 <= course_marks <= 79:
  28             self.courses_gpa_dict[j] = 3.4
  29
  30         if 70 <= course_marks <= 74:
  31             self.courses_gpa_dict[j] = 3.0
  32         if 67 <= course_marks <= 69:
  33             self.courses_gpa_dict[j] = 2.7
  34         if 64 <= course_marks <= 66:
  35             self.courses_gpa_dict[j] = 2.4
  36         if 60 <= course_marks <= 63:
  37             self.courses_gpa_dict[j] = 2.0
  38         print("The GPA of the courses are as follows: ")
  39         for k in self.courses_gpa_dict:
  40             print(f'The GPA in {k} is: ',self.courses_gpa_dict[k])
  41
  42     def calculate_cgpa(self):
  43         numerator_term=[]
  44         for l in self.courses_gpa_dict:
  45             prod=self.courses_gpa_dict[l]*self.course_credithr_dict[l]
  46             numerator_term.append(prod)
  47
  48         numerator=sum(numerator_term)
  49         CGPA=numerator/self.sum_of_credit_hrs
```

```
lab3 > q1.py
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  q1.py
    49 CGPA=numerator/self.sum_of_credit_hrs
    50 print(f'The CGPA of {self.name} is : {CGPA}')
    51 Hasnain=Student()
    52 Hasnain.std_info()
    53 Hasnain.courses()
    54 Hasnain.calculate_gpa()
    55 Hasnain.calculate_cgpa()
Student > calculate_cgpa()
Run: q1
Enter the credit hours of this course: 4
Enter the name of your course: BEL
Enter the credit hours of this course: 4
Enter the name of your course: ISL
Enter the credit hours of this course: 2
Enter marks of OOP : 80
Enter marks of DS : 84
Enter marks of AP : 83
Enter marks of BEL : 90
Enter marks of ISL : 77
The GPA of the courses are as follows:
The GPA in OOP is: 3.7
The GPA in DS is: 3.7
The GPA in AP is: 3.7
The GPA in BEL is: 4.0
The GPA in ISL is: 3.4
The CGPA of Muhammad Ali HAsnainis : 3.735294117647059
```

```
lab3 > q2.py
Project
  q1.py
  q2.py
    1 class Student:
    2     def std_info(self):
    3         self.name=input("Enter the name of student: ")
    4         self.roll_no=input("Enter roll no. of student: ")
    5         self.email_address=input("Enter the email address: ")
    6
    7     def courses(self):
    8         self.no_of_courses=int(input("Enter the no. of courses: "))
    9         self.course_credithr_dict={}
   10         for i in range(self.no_of_courses):
   11             self.courses_name=input("Enter the name of your course: ")
   12             self.credithr=int(input("Enter the credit hours of this course: "))
   13             self.course_credithr_dict[self.courses_name]=self.credithr
   14
   15     @classmethod
   16     def calculate_gpa(cls):
   17         self.courses_gpa_dict = {}
   18         self.sum_of_credit_hrs = 0
   19         for j in self.course_credithr_dict:
   20             self.sum_of_credit_hrs += self.course_credithr_dict[j]
   21             course_marks = int(input(f'Enter marks of {j} : '))
   22             if 85 <= course_marks <= 100:
   23                 self.courses_gpa_dict[j] = 4.0
   24             if 80 <= course_marks <= 84:
```

```
lab3 > q2.py
Project
q1.py x q2.py x
46     numerator_term.append(prod)
47
48     numerator=sum(numerator_term)
49     CGPA=numerator/self.sum_of_credit_hrs
50     print(f'The CGPA of {self.name} is :', CGPA)
51
52     @staticmethod
53     def no_of_students(Batch):
54         if Batch == 'First Year':
55             no_of_students = 50
56         elif Batch == 'Second Year':
57             no_of_students = 75
58         elif Batch == 'Third Year':
59             no_of_students = 110
60         elif Batch == 'Fourth Year':
61             no_of_students = 120
62         return no_of_students
63
64     Hasnain=Student()
65     Hasnain.std_info()
66     Hasnain.courses()
67     Hasnain.calculate_gpa()
68     Hasnain.calculate_cgpa()
```

```
lab3 > q2.py
Project
q1.py x q2.py x
46     numerator_term.append(prod)
47
48     numerator=sum(numerator_term)
49     CGPA=numerator/self.sum_of_credit_hrs
50     print(f'The CGPA of {self.name} is :', CGPA)
51
52     @staticmethod
53     def no_of_students(Batch):
54         if Batch == 'First Year':
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```
Enter the credit hours of this course: 4
Enter the name of your course: BEL
Enter the credit hours of this course: 4
Enter the name of your course: ISL
Enter the credit hours of this course: 2
Enter marks of OOP : 80
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Enter marks of AP : 83
Enter marks of BEL : 90
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The GPA of the courses are as follows:
The GPA in OOP is: 3.7
The GPA in DS is: 3.7
The GPA in AP is: 3.7
The GPA in BEL is: 4.0
The GPA in ISL is: 3.4
The CGPA of Muhammad Ali HASnainis : 3.735294117647059
```

```
lab3 > q3.py
class person:
    year_of_birth = int(input('Enter year of birth : '))

    @classmethod
    def calculate_age(cls):
        age = 2022 - cls.year_of_birth
        #print('Your age is ' age)
        return age

    @staticmethod
    def check_age(a):
        if a > 18:
            return True

p1 = person()
print('Your age is: ', p1.calculate_age())
print(p1.check_age(p1.calculate_age()))

Run: q1 x q3 x
"C:\Program Files\Python310\python.exe" "C:/Users/HAFIZ COMPUTER/Desktop/
Enter year of birth : 2003
Your age is: 19
True
Process finished with exit code 0
```