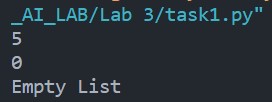
Lab Task 1

|  |
| --- |
| def count\_even\_numbers(numbers\_list):  even\_count = 0 i = 0 for i in numbers\_list:  i += 1 if i == 0:  return "Empty List" else: for num in numbers\_list: if num % 2 == 0: even\_count += 1 return even\_count numbers1 = [1,2,3,4,5,6,7,8,9,10] numbers2 = [11,13,15,17] numbers3 = []  print(count\_even\_numbers(numbers1)) print(count\_even\_numbers(numbers2)) print(count\_even\_numbers(numbers3)) |

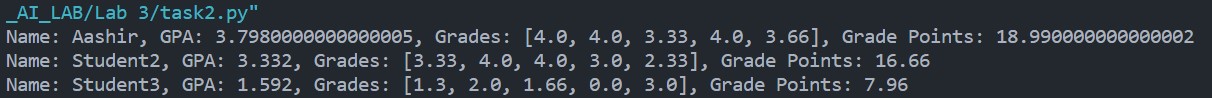
Output



Lab Task 2

|  |
| --- |
| def calculate\_gpa(students):  def calculate\_grade\_points(marks):  if marks >= 85: return 4.00 elif marks >= 80: return 3.66 elif marks >= 75: return 3.33 elif marks >= 71: return 3.00 elif marks >= 68: return 2.66 elif marks >= 64: return 2.33 elif marks >= 61: return 2.00 elif marks >= 58: return 1.66 |
| elif marks >= 54: return 1.30 elif marks >= 50: return 1.00 else: return 0.00 result = [] for student in students: name = student['name'] marks = student['marks']  total\_grade\_points = sum([calculate\_grade\_points(mark) for mark in marks])  gpa = total\_grade\_points / len(marks)  grades = [calculate\_grade\_points(mark) for mark in marks] result.append({ 'name': name,  'grades': grades,  'grade\_points': total\_grade\_points,  'gpa': gpa  }) return result students = [  {'name': 'Aashir', 'marks': [90, 88, 76, 95, 82]},  {'name': 'Student2', 'marks': [78, 85, 92, 71, 65]}, {'name': 'Student3', 'marks': [55, 62, 58, 49, 73]}  ]  gpa\_results = calculate\_gpa(students) for result in gpa\_results: print(f"Name: {result['name']}, GPA: {result['gpa']}, Grades: {result['grades']}, Grade Points: {result['grade\_points']}") |

Output



Lab Task 3

|  |
| --- |
| class Student:  def \_init\_(self, name, roll\_number): self.name = name  self.roll\_number = roll\_number self.marks = [] def add\_marks(self, subject, mark): self.marks.append((subject, mark)) def calculate\_average(self):  if not self.marks:  return 0.0  total\_marks = sum(mark for \_, mark in self.marks) average = total\_marks / len(self.marks) return average |
| student1 = Student("Ahsan", "051") student1.add\_marks("Math", 90) student1.add\_marks("Science", 90) student1.add\_marks("History", 78)  average\_marks = student1.calculate\_average()  print(f"{student1.name}'s Average Marks: {average\_marks:.2f}") |

Output



Post Lab Task

|  |
| --- |
| class Book: def \_init\_(self, title, author):  self.title = title self.author = author self.available = True def borrow(self): if self.available:  self.available = False  return f'You borrowed "{self.title}" by {self.author}.' else:  return f'"{self.title}" by {self.author} is unavailable.' def return\_book(self): if not self.available: self.available = True  return f'You returned "{self.title}" by {self.author}.' else:  return f'"{self.title}" by {self.author} was not borrowed.'  book1 = Book('Total Recall', 'Arnold Schwarzenegger') print(book1.borrow()) print(book1.borrow()) print(book1.return\_book()) print(book1.return\_book()) |

Output

