

# end-lab

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## 1 End Sem Practical

Name: Atul Dhiman

Roll Number: 25901325

Branch: A.I. (M.Tech)

### 1.1 Problem 1:

Objective: To enter a number and generate the Collatz conjecture of that number

```
[6]: def problem1(n): #define the function
    result_ = [float(n)]
    while n != 1:
        if n % 2 == 0:
            n = n / 2
        else:
            n = 3 * n + 1
        result_.append(float(n)) #appending the result in result list
    return result_ #return the result
# Taking the input
n = int(input("Enter the number"))
print(f"Entered Number: {n}")
# Output
print(problem1(n))
```

```
Entered Number: 12
[12.0, 6.0, 3.0, 10.0, 5.0, 16.0, 8.0, 4.0, 2.0, 1.0]
```

### 1.2 Problem 2

Objective: To count the number of notes against the amount

```
[7]: def problem2(amount):
    notes = [500, 200, 100, 50, 20, 10]      # type of notes available
    note_count = {}                          # dictionary to store the notes count
    for note in notes:
        if amount >= note:
            note_count[note] = amount // note
```

```

        amount = amount % note
    return note_count
# Input
amount = int(input("Enter the amount: "))           #taking the input
print(f"Entered amount:{amount}")
# Output
result = problem2(amount)
print("Number of notes:")
for note in result:                                #printing the results
    print(f"{note} : {result[note]}")

```

```

Entered amount:570
Number of notes:
500 : 1
50 : 1
20 : 1

```

### 1.3 Problem 3

**Objective:** Track attendance for students in a class using dictionary-based storage

```

[5]: attendance = {}                         #dictionary to store the values
while True:
    print("\n1. Mark Attendance")            # While loop to get the Choice
    print("2. View Attendance")
    print("3. Reset Attendance")
    print("4. Exit")
    choice = int(input("Enter choice: "))    # Entering the Choice
    if choice == 1:
        name = input("Enter student name: ") # Entering the student name
        if name in attendance:
            attendance[name] += 1           # Increasing the count by 1
        else:
            attendance[name] = 1
        print(f"{name}'s attendance marked.")

    elif choice == 2:
        if not attendance:                  # Viewing the attendance
            print("No attendance records found.")
        else:
            print("Attendance Records:")
            for student, count in attendance.items():
                print(f"{student} : {count}")

    elif choice == 3:                      #Resetting the attendance
        attendance.clear()
        print("Attendance reset successfully.")

```

```
    elif choice == 4:                                # Exiting the program
        print("Exiting program.")
        break

    else:
        print("Invalid choice. Please try again.")
```

1. Mark Attendance
2. View Attendance
3. Reset Attendance
4. Exit

Atul's attendance marked.

1. Mark Attendance
2. View Attendance
3. Reset Attendance
4. Exit

Akhilendra's attendance marked.

1. Mark Attendance
2. View Attendance
3. Reset Attendance
4. Exit

Attendance Records:

Atul : 1

Akhilendra : 1

1. Mark Attendance
2. View Attendance
3. Reset Attendance
4. Exit

Exiting program.

[ ]: