

# end-lab

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## 1 End Sem Practical

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### 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                # Increaing 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.

```

[ ]: