**Minor in AI**

**Master Session Notes**

Batch 4

31 Jan 2025

Title: Loops, Logical Operators and Error Handling

**Activity:**

Describe the figure below with one or two words. Select the most precise word(s).



‘Memory’ is a good starting point. Go beyond the basic thinking.

**Task 01:**

i) a = True

print(~a)

Why does it print -2 as result? Explain.

Hint: You need to understand 1’s and 2’s compliment for this.

ii) What is the difference between using (and, or, not) and (&, | and ~). When do we use each?

Hint: refer to lectue

Sample code snippets

a = 60

b = 80

if a > 50 and b > 50:

  print("Correct")

else:

  print("Incorrect")

a = True

print(~a)

print(not a)

a = True

b = False

print(a and b)

print(a or b)

print(not a)

**Task 02:** Counting the H and T from coin toss. Run the code on Collab and Tutor.

# Define the list containing 'H' and 'T'

flips = ['H', 'T', 'H', 'H', 'T', 'T', 'H', 'T', 'H', 'H']

# Initialize counters

h\_count = 0

t\_count = 0

# Loop through the list and count manually

for f in flips:

    if f == 'H':

        h\_count += 1

    elif f == 'T':

        t\_count += 1

# Print the results

print("Number of H:", h\_count)

print("Number of T:", t\_count)

**Task 03:** Program using While loop

# Define the list containing 'H' and 'T'

flips = ['H', 'T', 'H', 'H', 'T', 'T', 'H', 'T', 'H', 'H']

# Initialize counters

h\_count = 0

t\_count = 0

# Initialize index for while loop

i = 0

# Loop through the list using while loop

while i < len(flips):

    if flips[i] == 'H':

        h\_count += 1

    elif flips[i] == 'T':

        t\_count += 1

    i += 1

# Print the results

print("Number of H:", h\_count)

print("Number of T:", t\_count)

**Pointes to Ponder on:**

* What is in-place? When did we discuss it?
* Which of them is efficient:
  + a = a+ 1 or
  + a += 1
* What does len() do in lists?
* What are the different ways of looping in python?
* What is the difference between ‘~’ and ‘–‘ in programming?
* What are other basic data types in python other than int, char, string and Boolean?

**Homework Exercise:**

1. Write a program to capture the 50 dice throws and compute the number of times each number from 1 to 6 was rolled. Generate the dice rolls randomly.
2. Write a program to compute the average of 50 dice rolls.