

Assignment : Loops

for loop :

Q1 — Print “Hello Friend!” N times

Problem: Print the message Hello Friend! exactly N times.

Input:

3

Output:

Hello Friend!
Hello Friend!
Hello Friend!

Q2 — Print Numbers from 1 to N

Problem: Print numbers from 1 to N separated by spaces.

Input:

5

Output:

1 2 3 4 5

Q3 — Print Even Numbers from 1 to N

Problem: Print all even numbers between 1 and N (inclusive).

Input:

10

Output:

2 4 6 8 10

Q4 — Multiplication Table ($N \times 1$ to 10)

Problem: Print the multiplication table of N from 1 to 10, each result on a new line.

Input:

5

Output:

5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50

by Kunal Sir

Q5 — Sum of First N Natural Numbers

Problem: Compute the sum of numbers from 1 to N.

Input:

4

Output:

Total = 10

Q6 — Print First N Even Numbers

Problem: Print the first N even numbers (starting from 2).

Input:

4

Output:

2 4 6 8

Q7 — Print Squares of Numbers 1 to N

Problem: For each number from 1 to N, print its square on a new line.

Input:

4

Output:

1
4
9
16

Q8 — Sum of Even Numbers from 1 to N

Problem: Calculate and print the sum of all even numbers between 1 and N (inclusive).

Input:

10

Output:

Sum of even numbers = 30

While loop:

Q1 — Count from 1 to N

Problem: Using a `while` loop, print numbers 1 to N separated by spaces.

Input:

5

Output:

1 2 3 4 5

Q2 — Countdown N to 1

Problem: Using a `while` loop, print numbers from N down to 1.

Input:

5

Output:

5 4 3 2 1

Q3 — Print Odd Numbers up to N

Problem: Using a `while` loop, print all odd numbers \leq N.

Input:

7

Output:

1 3 5 7

Q4 — Sum Until User Enters Zero

Problem: Keep reading numbers and add them until the user inputs 0. Then print the sum (exclude the 0).

Input:

10
20
5
0

Output:

Total = 35

Q5 — Keep Asking PIN until Correct

Problem: Repeatedly read user PIN attempts until the correct PIN 1234 is entered. When correct print Access Granted. (Use while.)

Input:

0000
2222
1234

Output:

Access Granted

Q6 — Count Digits of a Number

Problem: Given a positive integer, use a `while` loop to count and print how many digits it has.

Input:

458

Output:

Number of digits = 3

Q7 — Reverse a Number (Print)

Problem: Read an integer and print its digits in reverse order using a `while` loop.

Input:

1234

Output:

4321

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Q8 — Savings Goal (Stop When Reached)

Problem: Start with total 0. Repeatedly read saving amounts and add them. Stop when total ≥ 1000 and print Goal reached and the total.

Input:

200
300
500

Output:

Goal reached
Total saved = 1000

do-while loop :

Q1 — Ask Name Until Not Empty

Problem: Use a do-while loop to keep asking for a non-empty name. After a valid name, print Welcome <name>.

Input:

```
" "  
"  
Ria
```

Output:

```
Welcome Ria
```

Q2 — Simple Menu (Repeat Until Exit)

Problem: Show menu:

```
1. Hello  
2. Bye  
0. Exit
```

Repeat using do-while until user selects 0. Print Hello or Bye on choice.

Input:

```
1  
2  
0
```

Output:

```
Hello  
Bye
```

Q3 — Shopping: Add Items Until Done

Problem: Repeatedly read item price (integer). After each, ask Add more? (y/n). Use do-while. When n, print total bill.

Input (lines):

```
100 y  
200 y  
50 n
```

Output:

```
Total = 350
```

Q4 — Try Login At Least Once

Problem: Use do-while to prompt for username at least once. Repeat until user enters admin. Print Login Successful.

Input:

```
user  
guest  
admin
```

Output:

```
Login Successful
```

Q5 — Enter Positive Number (Repeat If Non-Positive)

Problem: Use `do-while` to ask for a positive number (>0). If user inputs non-positive, ask again. Finally print Accepted X.

Input:

0
-2
8

Output:

Accepted 8

Q6 — Multiples Until Over 100

Problem: Given a number N, print multiples of N (N, 2N, 3N, ...) using `do-while` until the multiple > 100 . Print multiples ≤ 100 .

Input:

20

Output:

20 40 60 80 100

Q7 — Play Guess (up to attempts)

Problem: Secret number is 7. Use `do-while` to let user guess at least once and continue until they guess correct or attempts reach 5. If correct print You win, else after 5 wrong prints Game over.

Input (example):

3
5
9
7

Output:

You win

Q8 — Read Numbers Until Zero (Perform At Least One Read)

Problem: Using `do-while`, read numbers and sum them until user enters 0. Print the sum (0 may be the first input).

Input:

5
3
0

Output:

Sum = 8

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