



Name: _____ Index: _____ Reg.no.: _____ Class: _____ Date: _____

Differences between loops (FOR Loop, REPEAT UNTIL, WHILE DO ENDWHILE).

Feature	FOR Loop	REPEAT UNTIL Loop	WHILE DO ENDWHILE Loop
Definition	Executes a block of code a fixed number of times.	Executes the block at least once and repeats until a condition is met.	Repeats a block of code while a condition is true.
Condition Check	Not explicitly stated; relies on the range provided.	Checked after executing the loop body.	Checked before entering the loop.
Execution Guarantee	May not execute if the range is empty.	Always executes at least once.	May not execute if the condition is false initially.
Control Variable	Uses a control variable (e.g., FOR I).	No explicit control variable; relies on external condition.	No explicit control variable; relies on external condition.
Use Case	When the number of iterations is known beforehand.	When the loop body must run at least once, and the number of iterations depends on a condition.	When the loop body may or may not execute, depending on a condition.

Uses of Each Loop

1. FOR Loop:

- **Use Case:** Best suited for situations where the number of iterations is predetermined.
- **Example:** Printing numbers from 1 to 10, iterating through elements of an array.

```
FOR I ← 1 TO 10
  OUTPUT I
NEXT I
```

2. REPEAT UNTIL Loop:

- **Use Case:** Used when the loop must execute at least once, regardless of the condition.
- **Example:** Prompting a user for valid input until they enter a positive number.

```
REPEAT
  OUTPUT "Enter a positive number:"
  INPUT NUMBER
UNTIL NUMBER > 0
```

3. WHILE DO ENDWHILE Loop:

- **Use Case:** Suitable for situations where the condition must be checked before execution, and the loop may not run at all.
- **Example:** Monitoring a sensor until it reaches a threshold.

```
INPUT TEMPERATURE
WHILE TEMPERATURE < 100 DO
    OUTPUT "Heating..."
    INPUT TEMPERATURE
ENDWHILE
```

