# Repetition-2 Counted Loop

# Counted Loops

* loops that repeat a **fixed** number of times; the number a repetitions is known prior to beginning the loop

**Counted Increasing Loops**

* counts from one integer to another stepping the count by 1 each time

**Syntax for**

for identifier:int .. int by int

%body statements

end for

# Example 1

%count from 1 to 4

for count: 1.. 4

put count

end for

# Trace

1

2

3

4

|  |  |
| --- | --- |
| 1 2 3 4 5 | count |
|  |  |
|  |  |
|  |  |
|  |  |

OUTPUT

memory

# Example 2

% Calculate the average of a number of tests where the number of tests are entered by the % user

var numtests:int

var mark:real

var sum:real:=0

var average:real

put “How many tests are there?”..

get numtests

for i:1..numtests

put “Enter the test mark”..

get mark

sum:=sum + mark

end for

average:= sum / numtests

put “The test average is: “, average:0:1

# Counted Decreasing Loops

* counts from one integer to another stepping by –1 each time

**Syntax**

for decreasing identifier:int..int

%body statements

end for

**Example**

for decreasing i:3..1

put i

end for

3

2

1

|  |  |
| --- | --- |
| 3 2 1 0 | i |
|  |  |
|  |  |
|  |  |
|  |  |

OUTPUT

memory

**Trace**

# Stepping counted loop

* counts from one integer to another stepping by n each time

**Syntax**

for [decreasing] identifier:int..int by int

%body statements

end for

**Example**

for decreasing i:10..1 by 3

put i

end for

# Trace

10

7

4

1

|  |  |
| --- | --- |
| 10 7 4 1 -2 | i |
|  |  | |
|  |  | |
|  |  | |
|  |  | |

OUTPUT

memory