Today's Lecture
- Introduce WHILE loops
- WHILE Loop Counter
- WHILE Loop Flowchart

IF / THEN / ELSE

```
INPUT “Enter a number from 1 to 10:”, Num
IF Num <1 Or Num >10 THEN TRUE
    PRINT “ Not a valid number!”
ELSE FALSE
    PRINT “ The number is ”; Num
END IF
```

FOR Loop

Read 10 numbers. Accumulate the total. After the loop calculate and print the average.

```
Sum + Num
Avg = Sum / 10
Print Avg
```

WHILE Loop

```
Compare numbers. Continue until a 5 is entered. After the loop print the number of guesses.
```

WHILE Loops

- Loops as long as a condition is true
- Terminated when the condition is false
- Last statement is WEND
- Infinite loop -- Control Break
### WHILE Loop & Sum

```
WHILE Loop & Sum

Sum = 0
WHILE Again$ = "Y"
    INPUT "Enter Number", Num
    Sum = Sum + Num
    INPUT "Enter Y to go again. " Again$
WEND
PRINT “The sum is”; Sum
```

1. When the WHILE Loop condition is false, the program jumps to the line following:
   A) the NEXT Loop
   B) the END WHILE statement
   C) the WEND statement

### WHILE Loop & Average

```
WHILE Loop & Average

WHILE Again$ = "Y"
    INPUT "Guess", Guess
    Sum = Sum + Guess
    Count = Count + 1
    INPUT "Enter Y to go again. " Again$
WEND
PRINT "The sum is"; Sum
Average = Sum / Count
PRINT "The average is"; Average
```

2. A WHILE loop can be used in place of a FOR/NEXT loop.
   A) true
   B) false

3. A FOR/NEXT loop can be used in place of a WHILE loop.
   A) true
   B) false

---

### FOR Loop

```
CLS
FOR Number = 1 TO 10
    PRINT Number
NEXT Number
PRINT "End of Loop!"
```

B) false
FOR Loops CAN be nested

A) true
B) false

FOR Count = 5 TO 1 STEP -1
PRINT "Time is T -"; Count
FOR Delay = 1 TO 100000
NEXT Delay
NEXT Looper
PRINT "Lift off!"

SUM and COUNT...

Input numbers. Stops when the sum is 100 or higher. Prints the sum and the amount of numbers entered.

Input: 75
Input: 100
Print: sum = 175
Count = 2

Input: 10
Input: 50
Input: 20
Input: 30
Print: sum = 110
Count = 4

FLOWSHEET

If sum less than 100
Add 1 to count
Get a sum
Get new number

Sum < 100

yes
no

Add 1 to Count
Print Sum
Print Count
Next Num
Count = 1
INPUT "Enter 1st Number: " ; Num
Sum = Num
WHILE Sum <100
   INPUT "Enter Number" 
   Sum = Sum + Num
   Count = Count + 1
WEND
PRINT "The sum is " ; Sum
PRINT "You entered " ; Count ; " numbers!"

Count = 1
Used as a FOR Loop
Sum = 0
WHILE Count <=4
   INPUT "Enter Number" 
   Sum = Sum + Num
   Count = Count + 1
WEND
Print "The sum is " ; Sum

Count = 1
Infinite Loop
Sum = 0
WHILE Count <=4
   INPUT "Enter Number" 
   Sum = Sum + Num
   Count = Count + 1
WEND
Print "The sum is " ; Sum

What Output?
Word$ = "Hello"
Count = 0
WHILE Word$ = "Hello"
   Count = Count + 1
   PRINT "Count = "; Count
   Word$ = "Bye"
WEND
PRINT Word$

What Output? ...
Word$ = "Hello"
Count = 0
WHILE Word$ = "Hello"
   Count = Count + 1
   PRINT "Count = "; Count
   Word$ = "Bye"
WEND
PRINT Word$

What Output? ...
Count = 0
Sum = 0
WHILE Sum < 50
   INPUT "Enter Number" 
   Sum = Sum + Num
   Count = Count + 1
WEND
Print "The sum is " ; Sum
Guess My Number

Generate a random number. Ask the user to guess. If the guess is not right, tell the user it is too high or too low. Print how many times it took to get the right answer.

start
Count = 1
RandomNum = INT(RND * 15 + .5)

Input Guess

Guess <> Rand

yes

no

Guess > Rand

Print high

Add 1 to Count

Print low

Print Guess

Guess <> Rand

yes

no

Print Count

end

Web Pages Examples - Fall 2002 Section 1

Jennifer  webpages.csus.edu/~sac87349/
Ziven     webpages.csus.edu/~sac21711/
Eric      webpages.csus.edu/~sac33867/
Eric      webpages.csus.edu/~sac92429/

Section 2

Tony      webpages.csus.edu/~sac96422/
Zer       webpages.csus.edu/~sac35470/
Sandra    webpages.csus.edu/~sac14682/
Alicia    webpages.csus.edu/~sac50539/
Section 3
Sarah  webpages.csus.edu/~sac59309/
Natalya webpages.csus.edu/~sac88378/
Elizabeth webpages.csus.edu/~sac52063/

Section 4
Amanda  webpages.csus.edu/~sac89467/
Chris webpages.csus.edu/~sac70858/
Cesar webpages.csus.edu/~sac89186/
Mark  webpages.csus.edu/~sac98421/

Section 5
Chris  webpages.csus.edu/~sac31734/
Monica  webpages.csus.edu/~sac62392/

Section 6
Matt  webpages.csus.edu/~sac96810/
Ryan  webpages.csus.edu/~sac32470/
Agustin  webpages.csus.edu/~sac31575/

Section 8
Sophanny  webpages.csus.edu/~sac44502/
Chee  webpages.csus.edu/~sac95321/