Flow Control

Using “if”, “for” and “while”
What is Flow Control?

Concepts of Flow Control

- Programs so far
- Branching
  - if ( )
- Looping
  - While ( )
  - for ( )

• Decision Point
The IF Statement

Branching the Program

Basic Syntax:

```plaintext
if ( condition1 )
  do some work
elseif ( condition2 )
  do different work
  ...
else
  do default work
end
```
The FOR Statement

Predetermined Looping

Basic syntax:

for (counter=start:increment:stop) 
do some work
end

e.g.: a = 1:1:10; for (i=1:10)
       a(i) = a(i)^i;
end
EXAMPLE: Factorial (!)

Write a code to compute the factorial of a number. Use a “for” loop. Make sure that the user won’t enter an invalid number!!
The WHILE Statement

Loop Until a Condition is met

Basic syntax:

```plaintext
while ( condition )
    do some work
end

“condition” must change within the loop!!!
```
EXAMPLE: Factorial (!)

Write a code to compute the factorial of a number. Use a “while” loop.
Combining IF & FOR (or while)

Using the “break” statement

What control statements would produce these two pictures?