

# Flow Control

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Using “if”, “for” and “while”



# What is Flow Control?

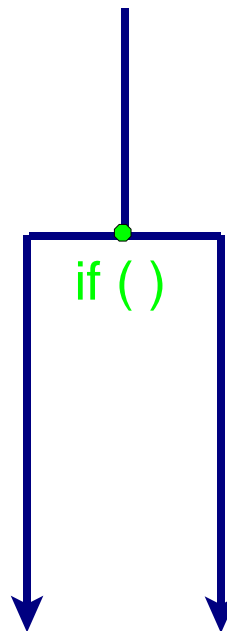
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## Concepts of Flow Control

Programs  
so far

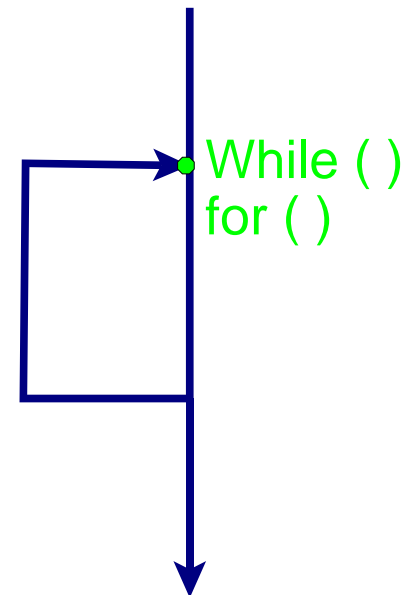


Branching



• Decision Point

Looping



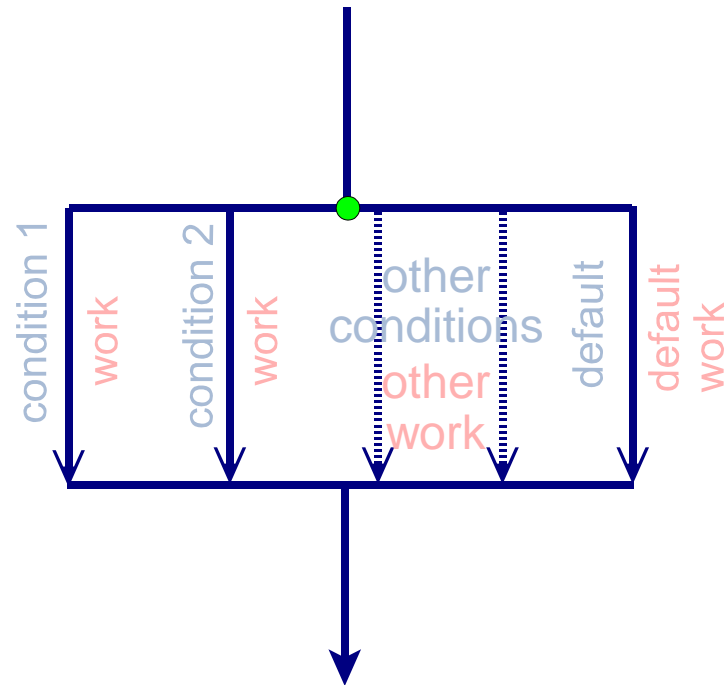
# The IF Statement

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## Branching the Program

Basic Syntax:

```
if ( condition1 )  
    do some work  
elseif ( condition2 )  
    do different work  
    :  
else  
    do default work  
end
```



# The FOR Statement

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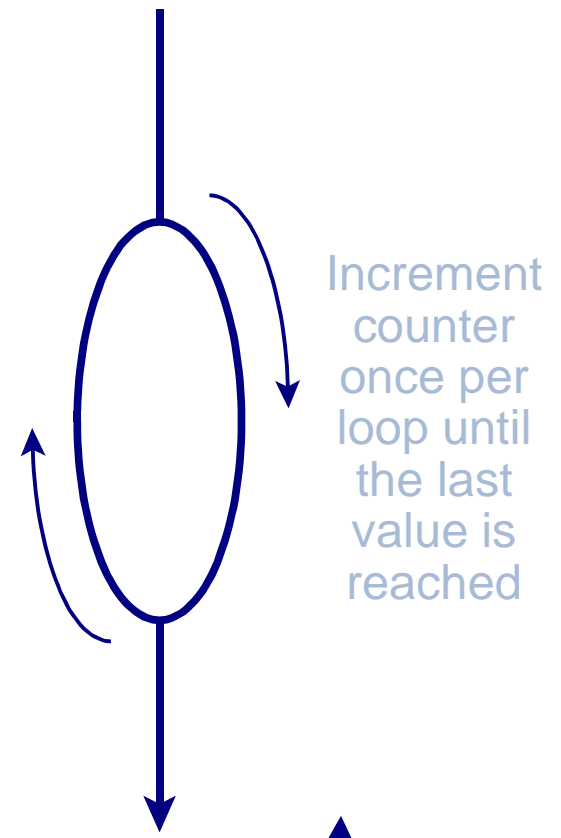
## Predetermined Looping

Basic syntax:

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

example:

```
a = 1:1:10;  
for (i=1:10)  
    a(i) = a(i)^i;  
end
```



# EXAMPLE: Factorial (!)

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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

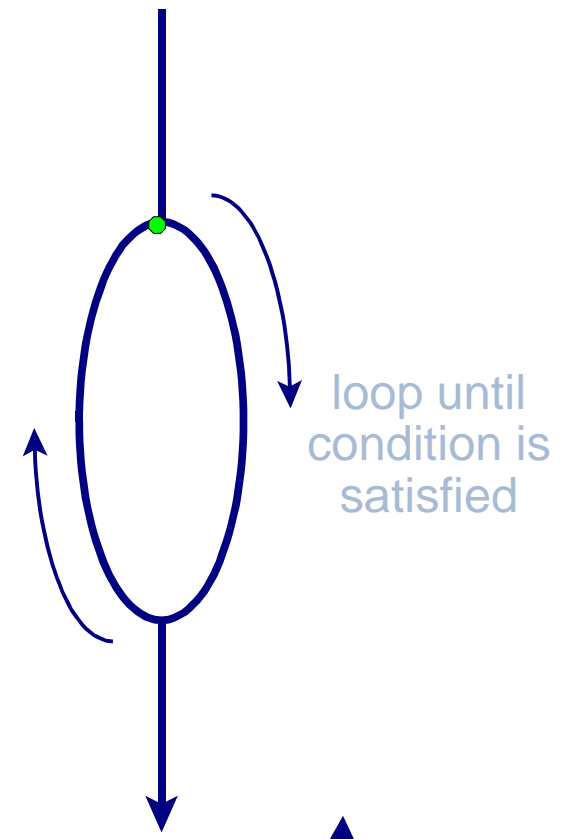
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Loop Until a Condition is met

Basic syntax:

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

“condition” *must* change  
within the loop!!!



# EXAMPLE: Factorial (!)

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Write a code to compute the factorial of a number. Use a “while” loop.



# Combining IF & FOR (or while)

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Using the “**break**” statement

What control statements would produce these two pictures?

