

100% Homework sheet

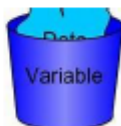


Variables

A variable is a location in memory in which you can temporarily store text or numbers. It is used like an empty box or the Memory function on a calculator. You can choose a name for the box (the "variable name") and change its contents in your program.

Using a Variable (firstname)

```
print ("What is your name?")
firstname = input()
print ("Hello,",firstname)
```



Adding Comments

Comments are useful to help understand your code. They will not affect the way a program runs. Comments appear in red and have a preceding # symbol.

```
#firstname is a variable
print ("What is your name?")
firstname = input()
print ("Hello,",firstname)
```

Writing error-free code

When writing programs, code should be as legible and error free as possible. Debugging helps keep code free of errors and documenting helps keep code clear enough to read.

Syntax errors

Syntax is the spelling and grammar of a programming language. In programming, a syntax error occurs when:

- there is a spelling mistake.
- there is a grammatical mistake.

Arithmetic operator	Operation
/	Division
*	Multiplication
**	Exponentiation
+	Addition
-	Subtraction
//	Integer division
%	Modulus

nested IF statements
You can use one IF or else IF statement inside another IF or else IF statement(s).

```
if temp < 8:
    print("Brr, its a cold day!!!")
elif temp >= 8 and temp < 15:
    print("I'ts a mild day")
elif temp >= 15 and temp < 21:
    print("Its a warm day")
elif temp >= 21:
    print("It's a hot day")
```

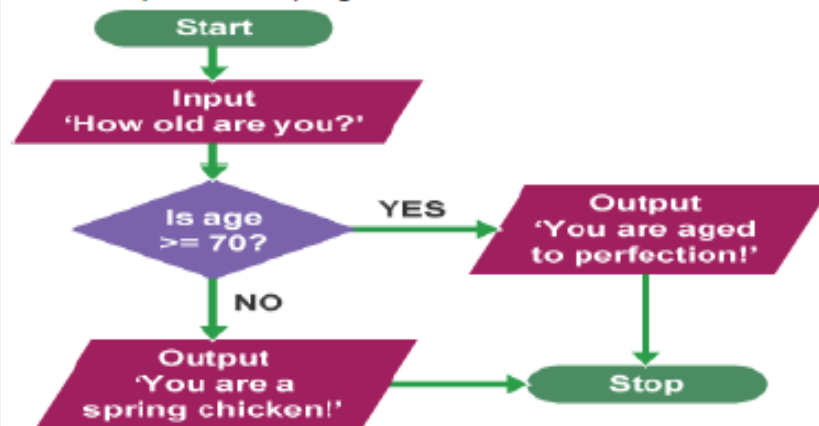
IF Statements

When designing programs, there are often points where a decision must be made. This decision is known as selection and is implemented in programming using IF statements. In programming, selection is usually represented by the statements IF and ELSE.

For selection, Python uses the statements if and else (note the lowercase syntax that Python uses):

Consider the age-related algorithm using Python. The steps are:

- Ask how old you are
- if you are 70 or older, say "You are aged to perfection!"
- else say "You are a spring chicken!"



The above algorithm would be written in Python (3.x) as:

```
age = int(input("How old are you?"))
if age >= 70:
    print("You are aged to perfection!")
else:
    print("You are a spring chicken!")
```