CHANDIGARH UNIVERSITY

Python Programming

Decision Statements

Outline

- Decision Making Statements
- Conditional Expressions

Decision Statements

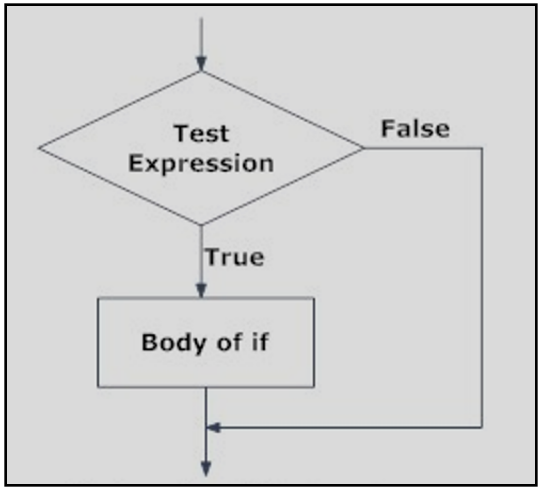
- Decision-making is the anticipation of conditions occurring during the execution of a program and specified actions taken according to the conditions.
- Decision structures evaluate multiple expressions, which produce TRUE or FALSE as the outcome.
- Python supports various decision making statements. These are:
- if statements
- if-else statements
- Nested if statements
- Multiway if-elif-else statements

Decision Statements

- **if statement**
- An if statement consists of a Boolean expression followed by one or more statements.
  - Syntax:

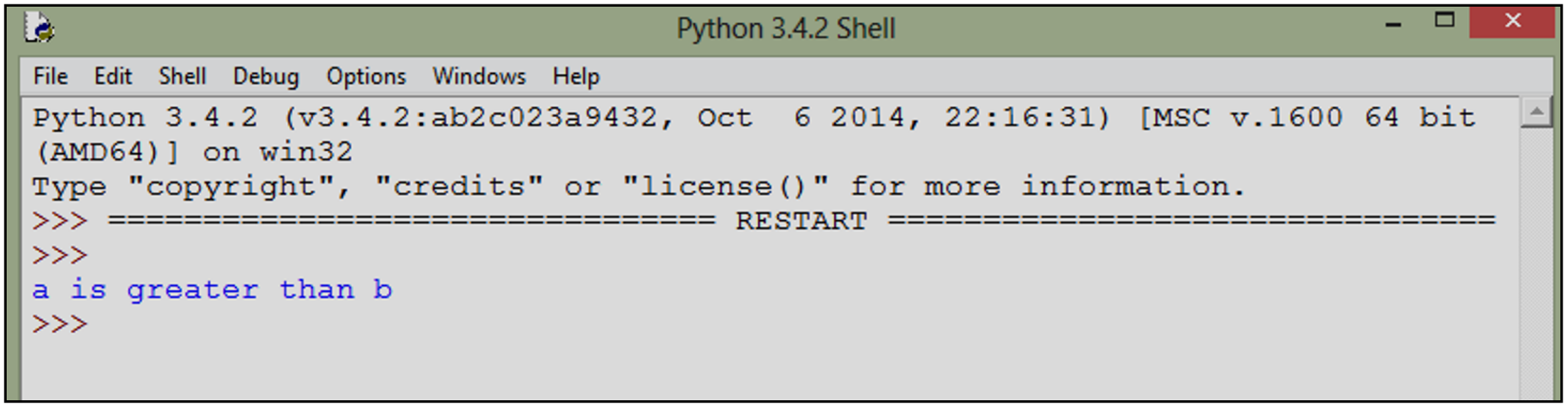
    `if` ***condition*** **:**

    statements
- The body of the if statement is indicated by the indentation. Body starts with an indentation and the first unindented line marks the end.
- Python interprets non-zero values as True.
- None and 0 are interpreted as False.



Decision Statements

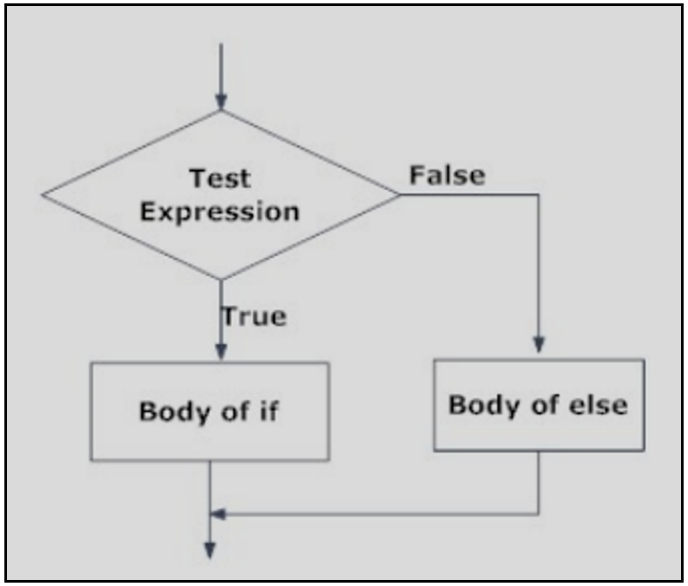
```
a = 20
b = 15
if a > b:
    print("a is greater than b")
```



Decision Statements

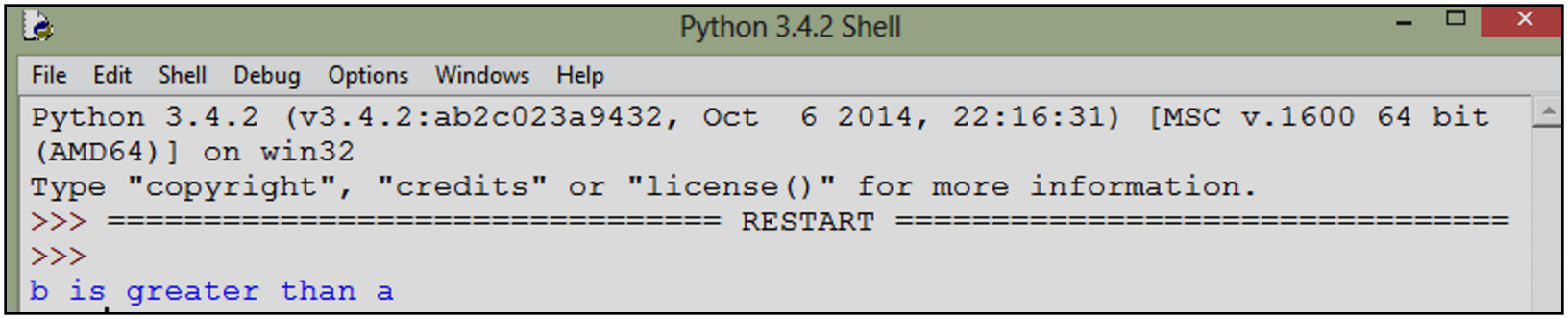
- **if-else statement**
- The if-else statement in python, is similar to the if statement, but in this case, there is an else statement available to execute the statement in case if the expression evaluates to false.
- Indentation is used to separate the blocks.
  - Syntax:

```
if condition :
        statements
else:
        statements
```



Decision Statements

```
a = 15
b = 20
if a > b:
    print("a is greater than b")
else:
    print("b is greater than a")
```



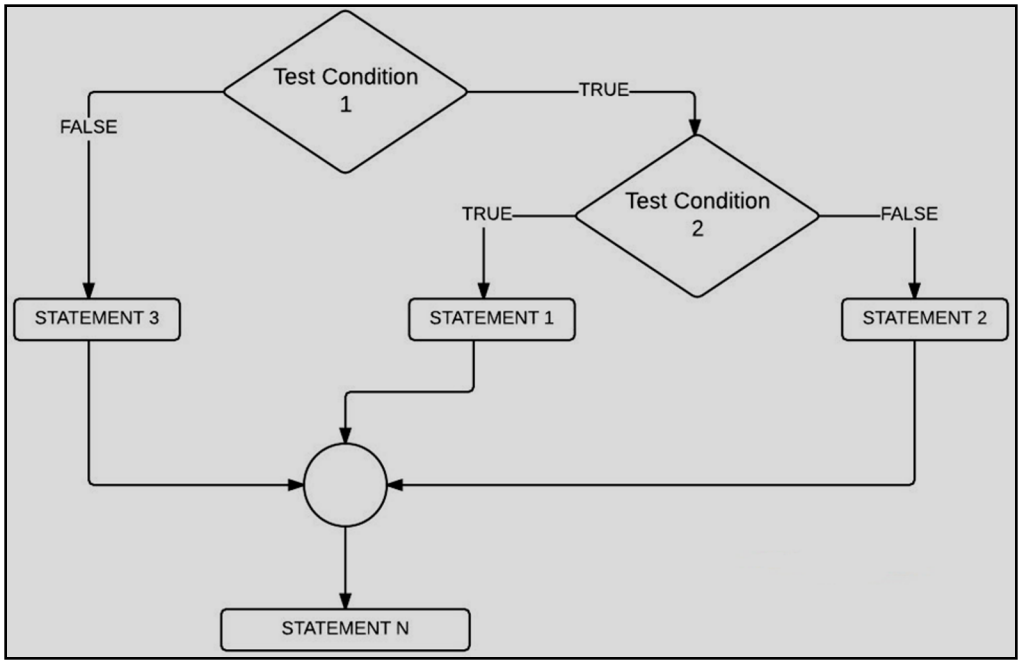
Decision Statements

- **Nested if statements**
- One if statement can be placed inside another if statement to form a nested if statement.
- The statement in an if or if-else statement can be any legal Python statement, including another if or if-else statement.
- The inner if statement is said to be nested inside the outer if statement. The inner if statement can contain another if statement; in fact, there is no limit to the depth of the nesting.
- The nested if statement can be used to implement multiple alternatives

Decision Statements

– Syntax:

```
if condition1 :
    if condition2 :
        statement1
    else:
        statement2
else:
    statement3
```



Decision Statements

nestedif.py - E:/Python3.4/Programs/nestedif.py (3.4.2)

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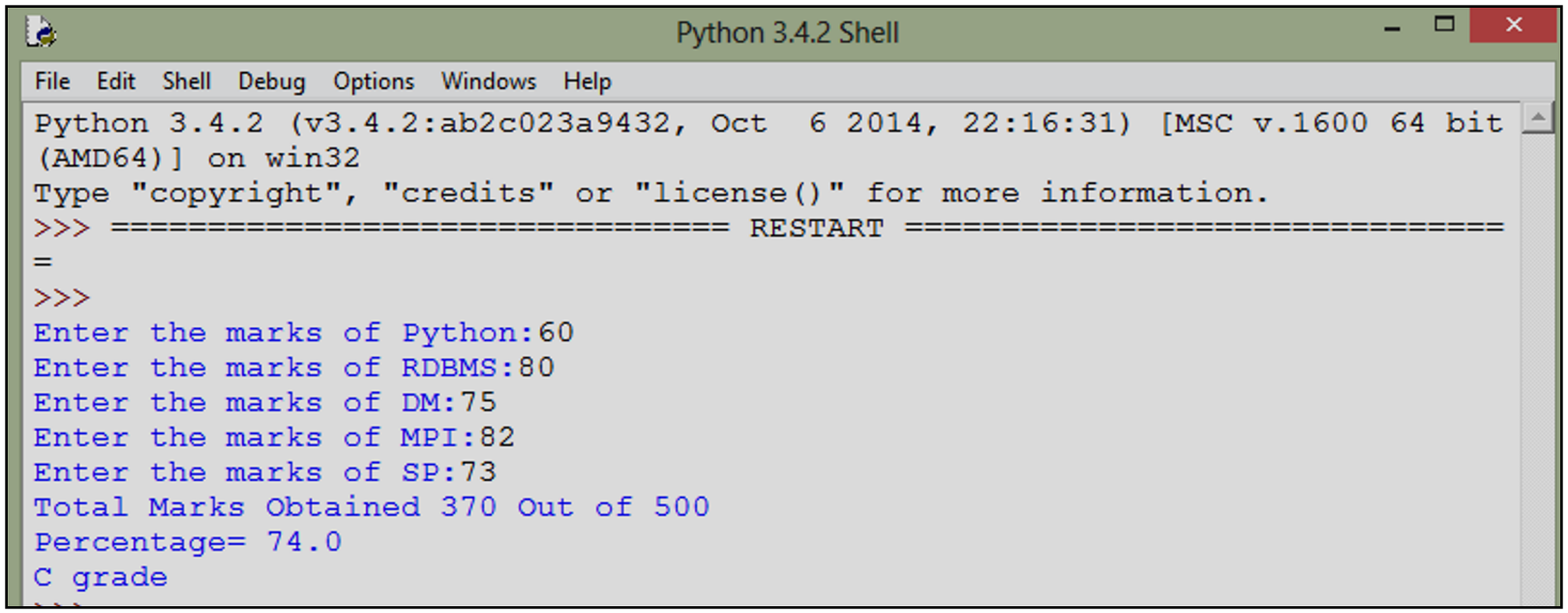
```
s1=eval(input("Enter the marks of Python:"))
s2=eval(input("Enter the marks of RDBMS:"))
s3=eval(input("Enter the marks of DM:"))
s4=eval(input("Enter the marks of MPI:"))
s5=eval(input("Enter the marks of SP:"))
sum=s1+s2+s3+s4+s5
per=sum/5
print("Total Marks Obtained",sum,"Out of 500")
print("Percentage=",per)
if per>=90:
      print("A grade")
else:
      if per>=80:
          print("B grade")
      else:
          if per>=70:
              print("C grade")
          else:
              if per>=60:
                  print("D grade")
              else:
                  print("F grade")
```

Decision Statements

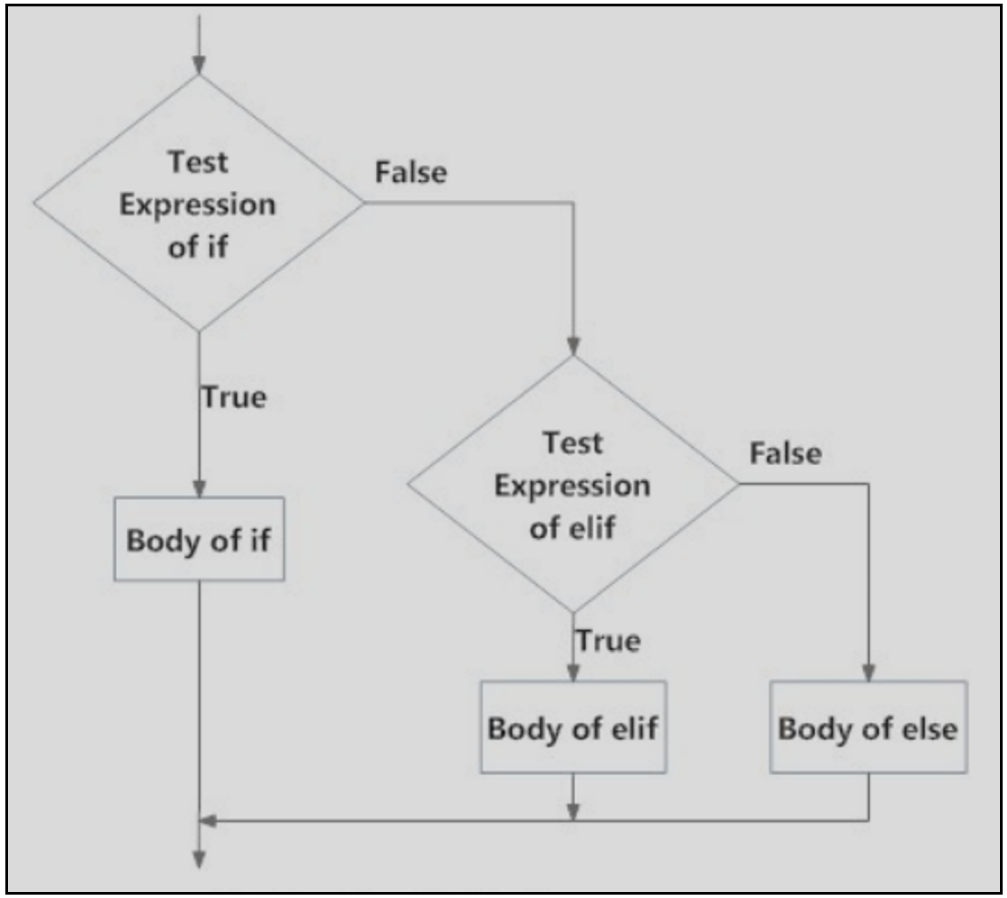


Decision Statements

- **if-elif-else statements**
- The multi-way if statements uses the syntax if-elif-else; elif (short for *else if)* is a Python keyword
- If the condition for if is False, it checks the condition of the next elif block and so on. If all the conditions are False, body of else is executed.
- Only one block among the several if...elif...else blocks is executed according to the condition.
- The if block can have only one else block. But it can have multiple elif blocks.

Decision Statements

```
if condition :
        statements
elif condition :
        statements
else:
        statements
```



Decision Statements

nestedif.py - E:/Python3.4/Programs/nestedif.py (3.4.2)

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sum=s1+s2+s3+s4+s5
per=sum/5
print("Total Marks Obtained",sum,"Out of 500")
print("Percentage=",per)
if per>=90:
      print("A grade")
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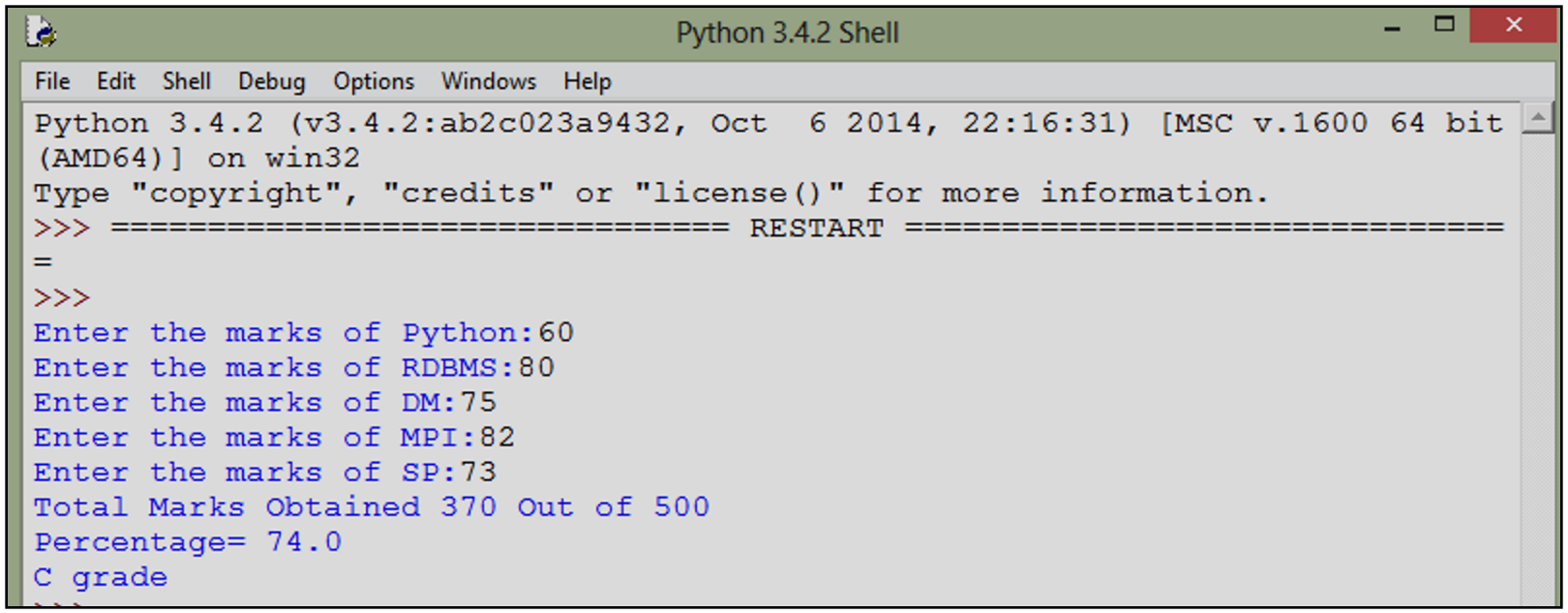
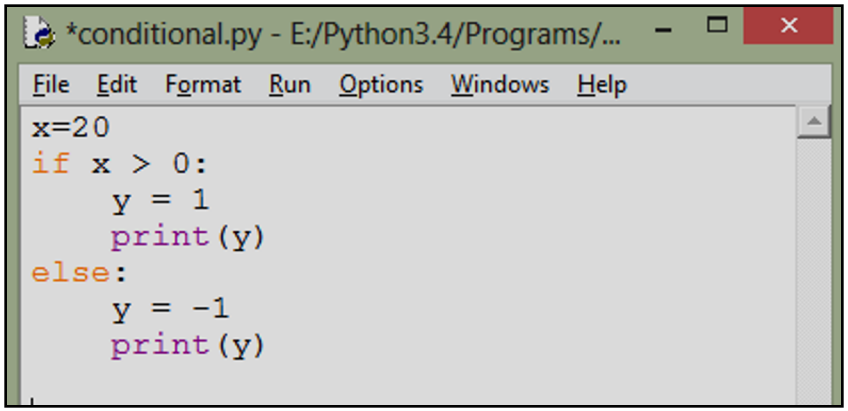
```

Decision Statements



Conditional Expressions

- A conditional expression evaluates an expression based on a condition.
- For example,
- the following statement assigns 1 to y if x is greater than 0, and -1 to y if x is less than or equal to 0.



- Alternatively, as in this next example, you can use a conditional expression to achieve the same result.

y = 1 if x > 0 else -1

Conditional Expressions

- Conditional expressions are in a completely different style.
- The syntax is:
  - expression1 if boolean-expression else expression2

  or
  - expression1 if condition else expression2
- The result of this conditional expression is expression1 if boolean-expression is true; otherwise, the result is expression2.
- Conditional expressions should probably be used sparingly because they can lead to confusion (especially if they are nested or mixed with other complicated expressions).

THANKS.....