Exercise 1 - Biggest of two numbers - Are these programs equivalent? Why

In [ ]:

```
### program 1

x = 10
y = 5
if(x > y):
    print('x is bigger')
elif (y < x):
    print('y is bigger')
else:
    print('equal')
```

In [ ]:

```
### program 2
x = 10
y = 5
if (x = y):
    print('equal')
elif(x > y):
    print('x is bigger')
else:
    print('y is bigger')
```

In [ ]:

```
## program 3
diff = x - y
if (diff == 0):
    print('equal')
elif(diff > 0):
    print('x is bigger')
else:
    print('y is bigger')
```

Exercise 3 - Absolute number

Write a program that calculates the absolute value of a number

Example:

- num = 10, output = 10
- num = -10, output = 10

(the absolute of a positive number is just the same number, the absolute of negative number is the positive version of number)

In [7]:

```
num = input('Enter a number')

if(num >= 0):
    print(num)
else:
    print(-1*num)
```

```
Enter a number10
10
```

In [10]:

```
-20000*-1
```

Out[10]:

```
20000
```

Exercise 4 - Repeat the text

write a program which takes as input text and a number n, and prints out the text repeated n times

Example:

- `text = 'hello', n = 3, outputs => hello hello hello`
- `text= 'hi', n = 2, outputs => hi hi`

Hint: Check string operations from last lecture

In [11]:

```
"hello" + " world"
```

Out[11]:

```
'hello world'
```

In [14]:

```
text = raw_input('Enter text')
n = input('Enter number')
print(text * n)
```

```
Enter texthello
Enter number3
hellohellohello
```

Exercise 5 - Sum from 1 to n

write a program that takes a number as input and outputs the sum from 1 to this number.

Example: n= 5, output= 1 + 2 + 3 + 4 + 5 = 15

Strings & Lists - Revisiting

In [ ]:

```
text = 'hello'
```

In [ ]:

```
## get first character of string
text[0]
```

In [ ]:

```
## get length of string
```

In [ ]:

```
len(text)
```

In [ ]:

```
## get last character of string
text[4]
```

In [ ]:

```
list_numbers = [1, 2, 3, 4, 10]
```

In [ ]:

```
list_numbers[0]
```

In [ ]:

```
len(list_numbers)
```

In [ ]:

```
list_numbers[4]
```

In [28]:

```
text + '....'
```

Out[28]:

```
'hello....'
```

In [29]:

```
list_numbers + [11,12,13]
```

Out[29]:

```
[1, 2, 3, 4, 10, 11, 12, 13]
```

In [41]:

```
substring = 'ell'
if(substring in text):
    print 'text contains ell'
```

```
text contains ell
```

In [42]:

```
num = 1
if(num in list_numbers):
    print 'list contains 1'
```

```
list contains 1
```

Exercise 6 - Are these 3 programs equivalent ? Why?

In [ ]:

```
### Program 1
text = 'hello'

for letter in text:
    print(letter)
```

In [ ]:

```
## Program 2
count = 0
while count < len(text):
    print(text[count])
    count = count + 1
```

In [ ]:

```
letters = ['h','e','l','l','o']
count = 0

while count <= len(letters)-1:
    print(letters[count])
    count = count + 1
```

Exercise 7 - Occurrences of a letter in text

Write a program that takes a text from user and a letter, and output the number of occurrences of that letter in the string. **Use while loop and not for loop!**

Hint:

- you can use len() to know the # of characters of the string.
- Example:
  - len('hello') gives as output 5

Exercise 8 - Reverse a string

Write a program which takes a text string from user, and prints out the reverse string.

Example:

- text = 'hello', output = 'olleh'

Exercise 9 - number is in list

Write a program that takes as input a list of numbers and then a number. If the list of numbers contains this number print 'exists' otherwise print 'doesn't exist'.

Example:

```
- a = [1,2,3,4], element = 4, output => exists
- b = [1,5,3,4], element = 2, output => doesn't exist
```

Homework

Exercise 10

Write a program that takes from user a number n and prints out the product from 1 till n.

Example:

- n = 2, output =1*2 = 2
- n = 3, output = 1 * 2 * 3 = 6

Exercise 11

Write a program that takes from user text as input and outputs how many vowels occur in text. vowels: a, e, i, o, u.

Example:

```
- text = 'hello', output = 2
- text = 'cat', output = 1
```