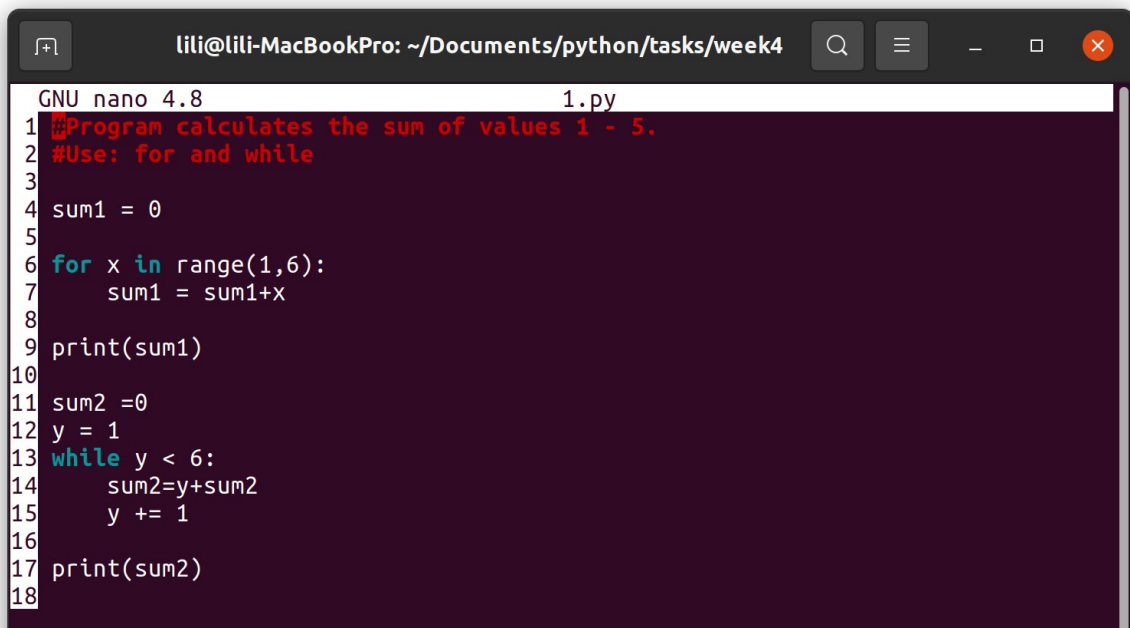


## Week 4

1. Program calculates the sum of values 1 - 5.

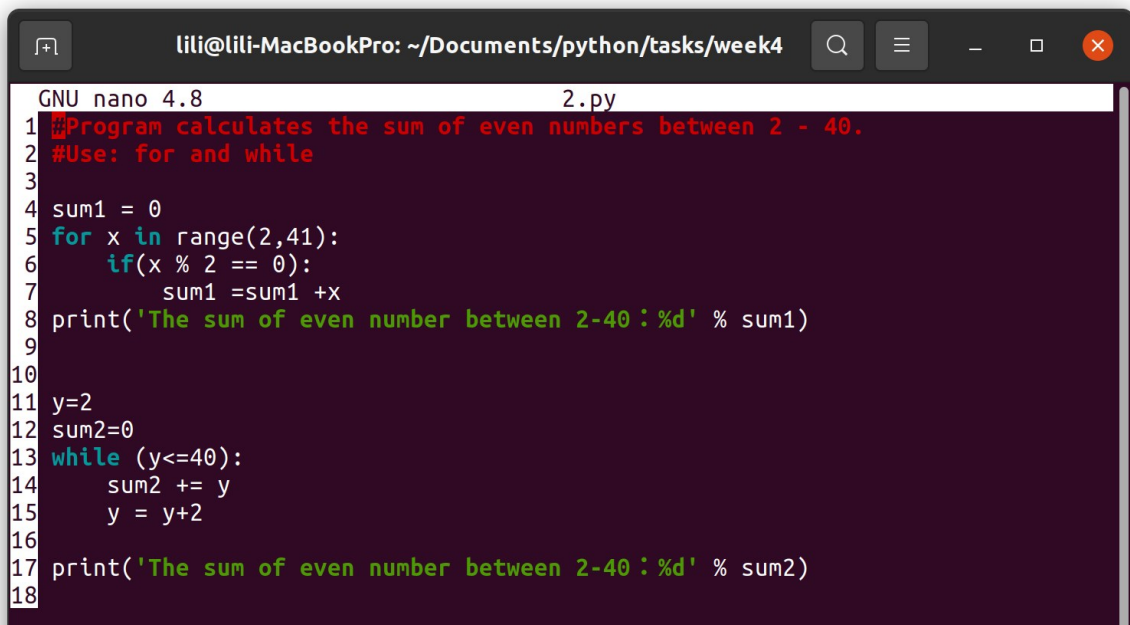
Use: for and while



```
GNU nano 4.8 1.py
1 #Program calculates the sum of values 1 - 5.
2 #Use: for and while
3
4 sum1 = 0
5
6 for x in range(1,6):
7     sum1 = sum1+x
8
9 print(sum1)
10
11 sum2 =0
12 y = 1
13 while y < 6:
14     sum2=y+sum2
15     y += 1
16
17 print(sum2)
18
```

2. Program calculates the sum of **even** numbers between 2 - 40.

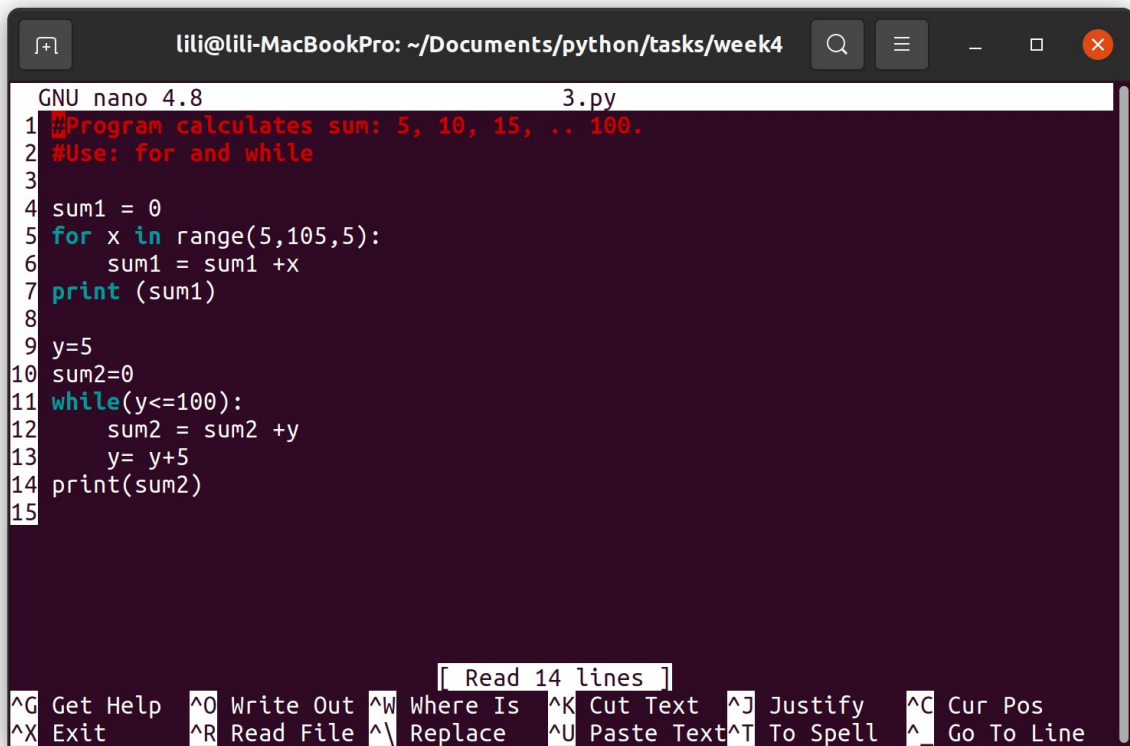
Use: for and while



```
GNU nano 4.8 2.py
1 #Program calculates the sum of even numbers between 2 - 40.
2 #Use: for and while
3
4 sum1 = 0
5 for x in range(2,41):
6     if(x % 2 == 0):
7         sum1 =sum1 +x
8 print('The sum of even number between 2-40 :%d' % sum1)
9
10
11 y=2
12 sum2=0
13 while (y<=40):
14     sum2 += y
15     y = y+2
16
17 print('The sum of even number between 2-40 :%d' % sum2)
18
```

3. Program calculates sum: 5, 10, 15, .. 100.

Use: for and while



The image shows a terminal window on a MacBook Pro. The window title is "lili@lili-MacBookPro: ~/Documents/python/tasks/week4". The terminal is running GNU nano 4.8 editing a file named 3.py. The script contains two loops: a for loop that sums numbers from 5 to 105 in increments of 5, and a while loop that sums numbers from 5 to 100 in increments of 5. The bottom of the window shows nano editor shortcuts.

```
GNU nano 4.8 3.py
1 #Program calculates sum: 5, 10, 15, .. 100.
2 #Use: for and while
3
4 sum1 = 0
5 for x in range(5,105,5):
6     sum1 = sum1 +x
7 print (sum1)
8
9 y=5
10 sum2=0
11 while(y<=100):
12     sum2 = sum2 +y
13     y= y+5
14 print(sum2)
15
```

Read 14 lines

<b>^G</b> Get Help	<b>^O</b> Write Out	<b>^W</b> Where Is	<b>^K</b> Cut Text	<b>^J</b> Justify	<b>^C</b> Cur Pos
<b>^X</b> Exit	<b>^R</b> Read File	<b>^_</b> Replace	<b>^U</b> Paste Text	<b>^T</b> To Spell	<b>^_</b> Go To Line

4. Program throws dice 100 times and tells amounts of different values (1, 2, 3, 4, 5, and 6).

Hints:

```
from random import randint
# scaling example [0,10]
value = randint(0, 10)
```

```
lili@lili-MacBookPro: ~/Documents/python/tasks/week4
GNU nano 4.8 4.py
1 Program throws dice 100 times and tells amounts of different values (1,
2 #2, 3, 4, 5, and 6).
3 import random
4
5 n1=n2=n3=n4=n5=n6=0
6
7 for x in range(100):
8     y = random.randint(1,6)
9     if y == 1:
10         n1 += 1
11     elif y ==2:
12         n2 += 1
13     elif y ==3:
14         n3 += 1
15     elif y ==4:
16         n4 += 1
17     elif y ==5:
18         n5 +=1
19     elif y ==6:
20         n6 += 1
21 print("Amounts:")
22 print(f"number 1:{n1}")
23 print(f"number 2:{n2}")
24 print(f"number 3:{n3}")
25 print(f"number 4:{n4}")
26 print(f"number 5:{n5}")
27 print(f"number 6:{n6}")
28
29
line 1/29 (3%), col 1/74 (1%), char 0/476 (0%)
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos
^X Exit ^R Read File ^\ Replace ^U Paste Text ^T To Spell ^_ Go To Line
```

5

Account manager with menu:

User can make deposits

Do withdrawal

Check the balance

```
GNU nano 4.8 5.py
1 #Account manager with menu:
2 #User can make deposits
3 #Do withdrawal
4 #Check the balance
5
6 amount = float(input("Input your amount of savings: "))
7 round(amount,2)
8 while True:
9     c = int(input("Choose 2 to make a deposit/Choose 1 to withdrawal/Choose 0 to quit the program: "))
10    if (c==1):
11        w=float(input("Input the amount you want to whithdrawal: "))
12        round(w,2)
13        if w<=amount:
14            amount = amount-w
15            print(f"Your amount is : {round(amount,2)}")
16            continue
17        else:
18            print("Invalid withdrawal amount!")
19            continue
20    elif(c==2):
21        d = float(input("Input your amount of deposite: "))
22        round(d,2)
23        amount = amount + d
24        print(f"Your amount is : {amount}")
25        continue
26    elif(c==0):
27        break
28
29
30
^G Get Help      ^O Write Out    ^W Where Is     ^K Cut Text     ^J Justify      ^G Cur Pos      M-U Undo
^X Exit          ^R Read File    ^\ Replace      ^U Paste Text   ^T To Spell     ^_ Go To Line    M-E Redo
```

the run

```
lili@lili-MacBookPro:~/Documents/python/tasks/week4$ python3 5.py
Input your amount of savings: 1000
Choose 2 to make a deposit/Choose 1 to withdrawal/Choose 0 to quit the program: 1
Input the amount you want to whithdrawal: 90.98
Your amount is : 909.02
Choose 2 to make a deposit/Choose 1 to withdrawal/Choose 0 to quit the program: 2
Input your amount of deposite: 19965.98
Your amount is : 20875.0
Choose 2 to make a deposit/Choose 1 to withdrawal/Choose 0 to quit the program: 0
lili@lili-MacBookPro:~/Documents/python/tasks/week4$ python3 5.py
Input your amount of savings: 987.8765
Choose 2 to make a deposit/Choose 1 to withdrawal/Choose 0 to quit the program: 1
Input the amount you want to whithdrawal: 1000.87
Invalid withdrawal amount!
Choose 2 to make a deposit/Choose 1 to withdrawal/Choose 0 to quit the program: 1
Input the amount you want to whithdrawal: 9
Your amount is : 978.88
Choose 2 to make a deposit/Choose 1 to withdrawal/Choose 0 to quit the program: 0
```

6

Try to solve this equation (try find 1 of roots)

$$3x^3 - 4x^2 + 9x + 5 = 0$$

Here ^ means exponent

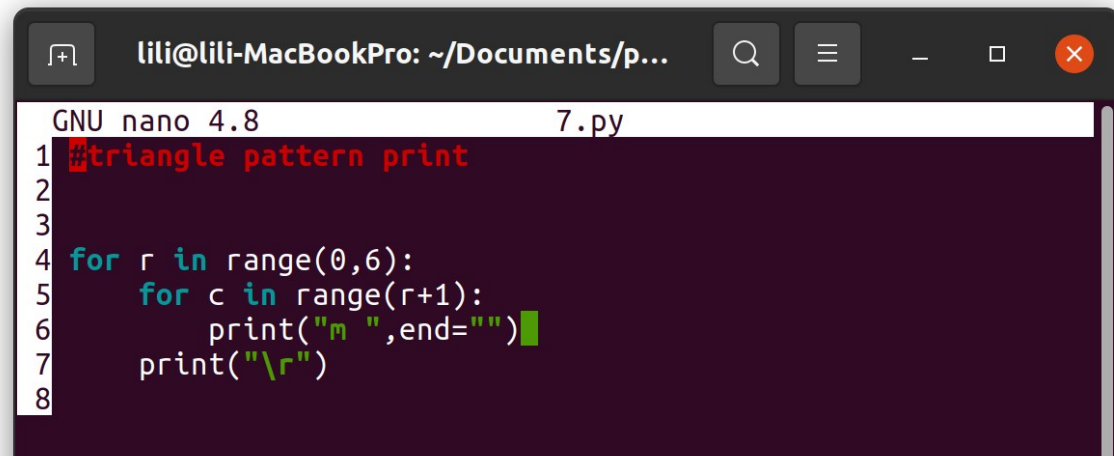
```
lili@lili-MacBookPro:~/Documents/python/tasks/week4$ python3 6.py
-0.4406999999982819
6.041859552308182e-05
```

```
lili@lili-MacBookPro: ~/
GNU nano 4.8
1 #Try to solve this equation (try find 1 of roots)
2 #3x^3 - 4x^2 + 9x +5 = 0
3 #Here ^ means exponent
4
5 x=-5
6 y=0
7
8 while True:
9     y = 3*x**3 - 4*x**2 + 9*x + 5
10    if y > -0.001 and y < 0.001:
11        break
12    x += 0.0001
13
14 print(x)
15 print(y)
16
17
18
```

7  
Print this kind of semipyramid (character amount of rows is given in a variable):

```
m
mm
mmm
mmmm
mmmmm
```

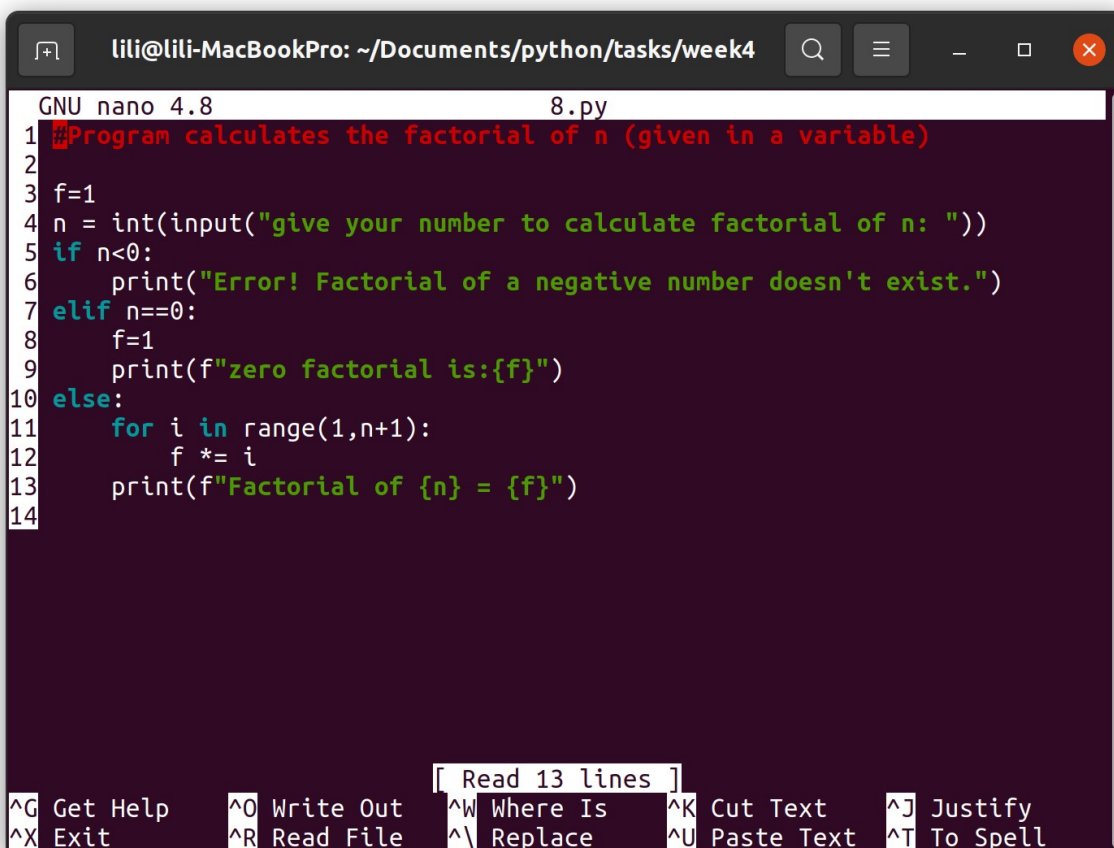
```
lili@lili-MacBookPro: ~/Documents/p...
lili@lili-MacBookPro:~/Documents/python/tasks/week4$ nano 7.py
lili@lili-MacBookPro:~/Documents/python/tasks/week4$ python3 7
.py
m
m m
m m m
m m m m
m m m m m
m m m m m m
lili@lili-MacBookPro:~/Documents/python/tasks/week4$ nano 7.py
lili@lili-MacBookPro:~/Documents/python/tasks/week4$
```



A terminal window titled "lili@lili-MacBookPro: ~/Documents/p..." showing a nano editor session for a file named "7.py". The code is as follows:

```
GNU nano 4.8 7.py
1 #triangle pattern print
2
3
4 for r in range(0,6):
5     for c in range(r+1):
6         print("m ",end="")
7     print("\r")
8
```

8. Program calculates the factorial of n (given in a variable)



A terminal window titled "lili@lili-MacBookPro: ~/Documents/python/tasks/week4" showing a nano editor session for a file named "8.py". The code is as follows:

```
GNU nano 4.8 8.py
1 #Program calculates the factorial of n (given in a variable)
2
3 f=1
4 n = int(input("give your number to calculate factorial of n: "))
5 if n<0:
6     print("Error! Factorial of a negative number doesn't exist.")
7 elif n==0:
8     f=1
9     print(f"zero factorial is:{f}")
10 else:
11     for i in range(1,n+1):
12         f *= i
13     print(f"Factorial of {n} = {f}")
14
```

At the bottom of the terminal, there is a status bar with the text "Read 13 lines" and a set of keyboard shortcuts:

<b>^G</b> Get Help	<b>^O</b> Write Out	<b>^W</b> Where Is	<b>^K</b> Cut Text	<b>^J</b> Justify
<b>^X</b> Exit	<b>^R</b> Read File	<b>^_</b> Replace	<b>^U</b> Paste Text	<b>^T</b> To Spell

9. Program calculates the exponential value (base and exponent are given invariable). Base can be a real number, exponent is a whole number. Use a loop.

lili@lili-MacBookPro: ~/Documents/python/tasks/week4

GNU nano 4.89.py

```
1 #Program calculates the exponential value (base and exponent are
2 #given in variable). Base can be a real number, exponent is a whole number.
3 #Use a loop.
4
5 r=1
6 k=1
7
8 base = float(input("Entre your base number: "))
9 exp = int(input("Enter your exponent number: "))
10 if exp > 0:
11     for x in range(1,exp+1):
12         r *= base
13     print(r)
14 elif exp == 0:
15     print("1")
16 else:
17     for y in range (1,(exp-1)*(-1)):
18         k *= base
19     r = 1/k
20     print(r)
21
```

Read 20 lines

Get Help

Exit

Write Out

Read File

Where Is

Replace

Cut Text

Paste Text

Justify

To Spell

Cur Pos

Go To Line

M-U

M-E

Undo

Redo