

Programming with Python1

លំហាត់សម្រាប់ Midterm

Chapter 1 : Basic

1.1- Please create an application to show message like below:

Welcome to learn Visual Basic.Net Programming Language.

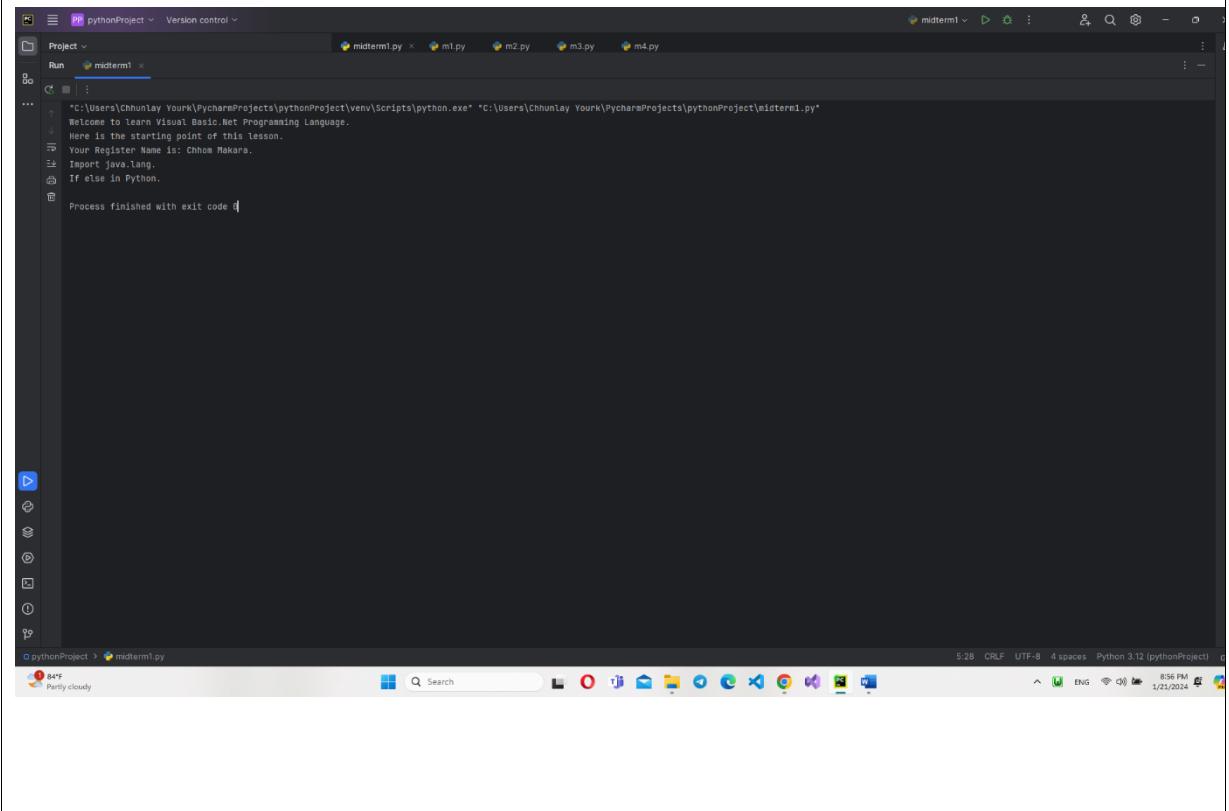
Here is the starting point of this lesson.

Your Register Name is : **Chhom Makara.**

Imort java.lang.

If lese

Answer:



```
pythonProject Version control
Project Run midterm1
Run Go ...
...
* C:\Users\Chhom Makara\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\Chhom Makara\PycharmProjects\pythonProject\midterm1.py"
Welcome to learn Visual Basic.Net Programming Language.
Here is the starting point of this lesson.
Your Register Name is: Chhom Makara.
Import java.lang.
If else in Python.
Process finished with exit code 0
```

1.2- Please create an application that allow user to prompt a string and then show that string as a



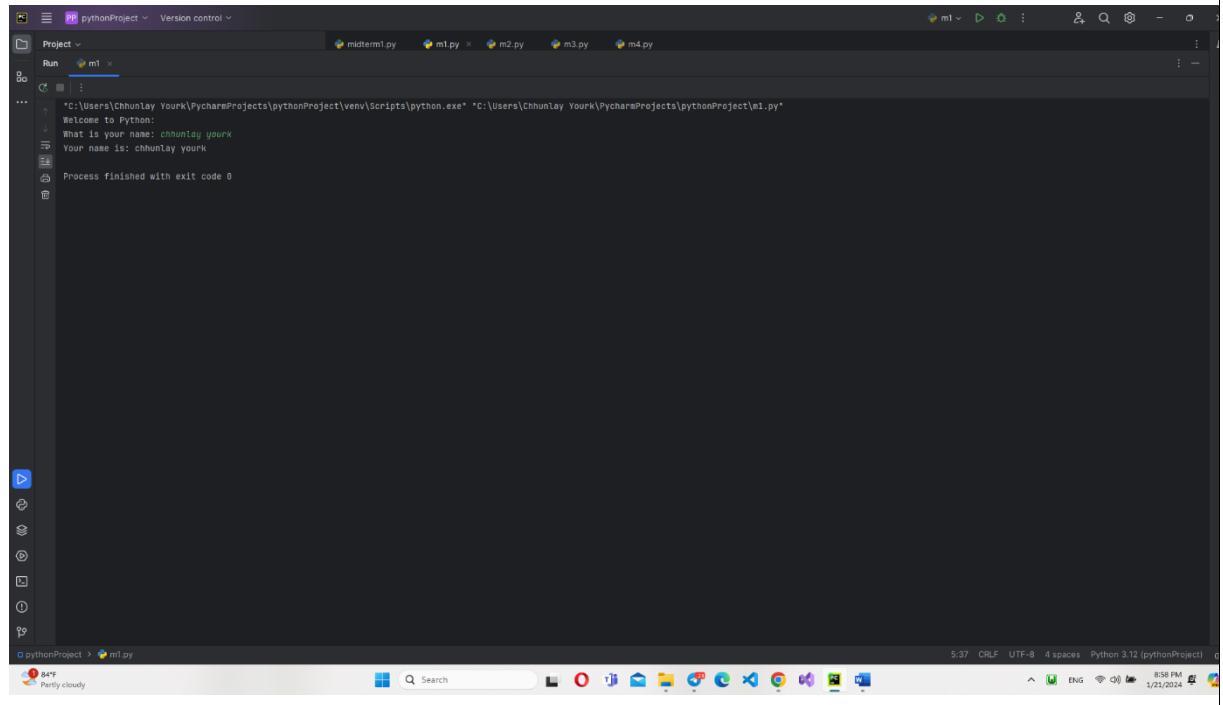
message. See the example of below:

Welcome to VB.NET:

What is your name : **Keo Sereyroth**

Your name is : **Keo Sereyroth**

Answer:



```
*C:\Users\Chhunlay Youk\PycharmProjects\pythonProject\venv\Scripts\python.exe* "C:\Users\Chhunlay Youk\PycharmProjects\pythonProject\m1.py"
Welcome to Python:
What is your name: chhunlay youk
Your name is: chhunlay youk
Process finished with exit code 0
```

1.3- Please create an application that allow user to prompt any two number and then total it together. At the end of this application show the result as a message. See the example of below:

Welcome to VB.NET:

Please input number - 1 : **3.5**

Please input number - 2 : **3.5**

The total is : **7**

Answer:



The screenshot shows a PyCharm interface with a terminal window displaying the output of a Python script named m2.py. The terminal output is as follows:

```
*c:\Users\Chhunlai Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe* "C:\Users\Chhunlai Yourk\PycharmProjects\pythonProject\m2.py"
Welcome to Python:
Please input number : 10
Please input number : 20
The total is: 30.0
Process finished with exit code 0
```

1.4- Please create an application that allow user to prompt any two number and then let them choose one of the below method:

1 – Summary

2 – Multiply

3 – Minus

After the calculation show the result as a message. See the example of below:

Please input number - 1 : 2

Please input number - 2 : 3

Please choose method below:

1 – Summary

2 – Multiply

3 – Minus

Your choice : 2

The result is : 6

Answer:



```
m3 > Run m3 >
...
* C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Chhunlay Yourk/PycharmProjects/pythonProject/m3.py"
Enter the first number: 5
Enter the second number: 7
Choose an operation:
1 - Summary
2 - Multiply
3 - Minus
Enter your choice (1, 2, or 3): 1
The result of Summary is: 12.0
Process finished with exit code 0
```

1.5- Please create an application that allow user to input any score of five subject (Math, Physic, Khmer, Chemistry, and English) and then calculate them as **total** and **average**:

See the example of below:

Please input five score of subject below :

- Math : **100**
- Physic : **100**
- Khmer : **100**
- Chemistry : **100**
- English : **100**

The total is : **500**

The average is : **100**

[Answer:](#)

The screenshot shows a PyCharm IDE interface. In the top navigation bar, it says "pythonProject" and "Version control". Below the bar, there's a "Run" tab and a "m4" tab. The main area displays the output of a Python script named "m4.py". The script prompts the user to input five scores for subjects: Math, Physics, Chemistry, Biology, and English. It calculates the total score (245.0) and the average score (49.0). The terminal window also shows the message "Process finished with exit code 0".

```
*C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe* "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\m4.py"
Please input five scores for the subjects below:
Please input the score for Math: 50
Please input the score for Physic: 30
Please input the score for Chemistry: 45
Please input the score for Biology: 70
Please input the score for English: 50
The total score is: 245.0
The average score is: 49.0
Process finished with exit code 0
```

Chapter 3 Control Structure

3.1- Please create an application to calculate the maximum number of two number:

Calculate the maximum of two number :

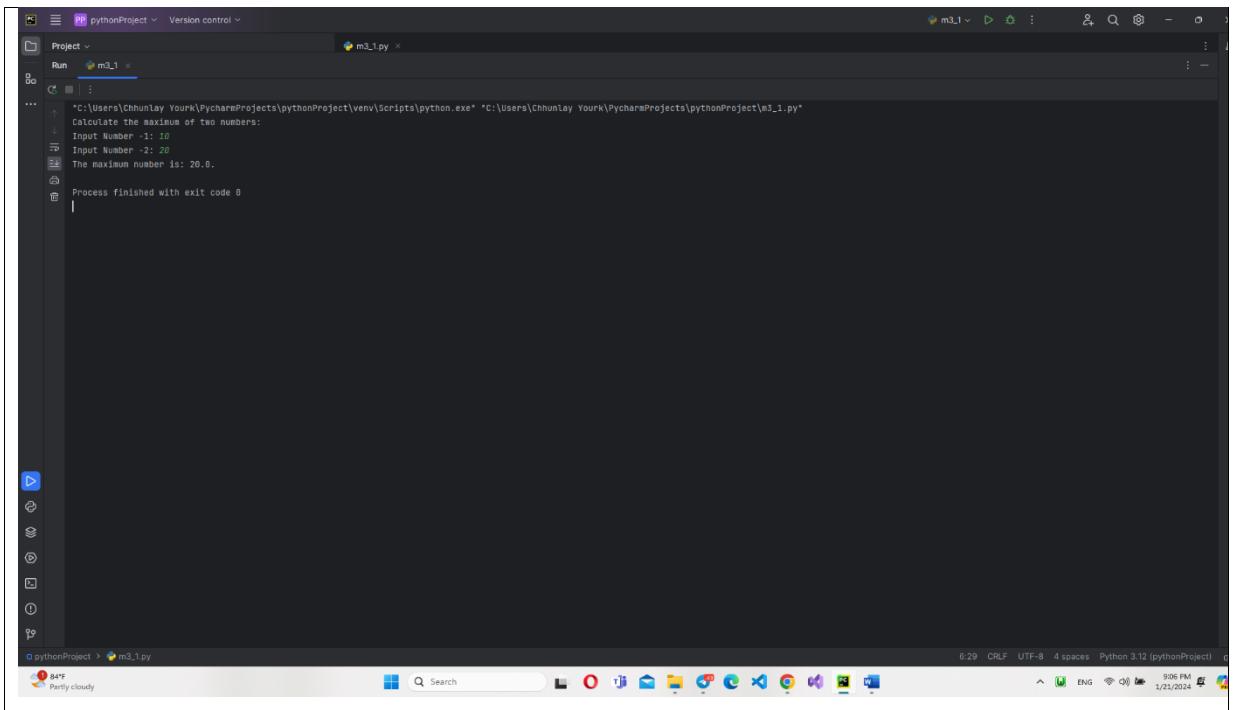
Input Number -1 : 10

Input Number -2 : 20

The maximum number is: 20.

[Answer:](#)





```
*C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\m3_1.py"
Calculate the maximum of two numbers:
Input Number -1: 10
Input Number -2: 20
The maximum number is: 20.0.

Process finished with exit code 0
```

3.2- Please create an application to calculate the maximum and minimum number of any three number:

Calculate the maximum, minimum of three number :

Input Number -1 : 10

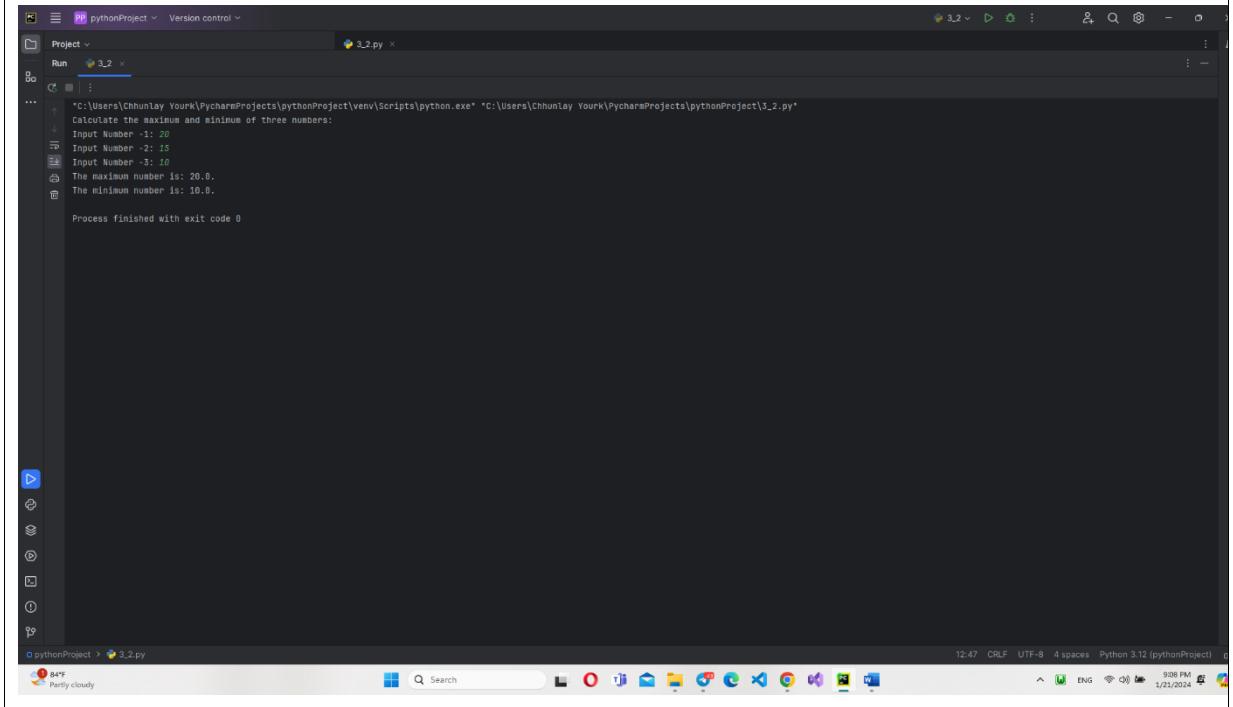
Input Number -2 : 20

Input Number -3 : 30

The maximum number is: 30.

The minimum number is: 10.

[Answer:](#)



```
*C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\3_2.py"
Calculate the maximum and minimum of three numbers:
Input Number -1: 20
Input Number -2: 15
Input Number -3: 10
The maximum number is: 20.0.
The minimum number is: 10.0.

Process finished with exit code 0
```

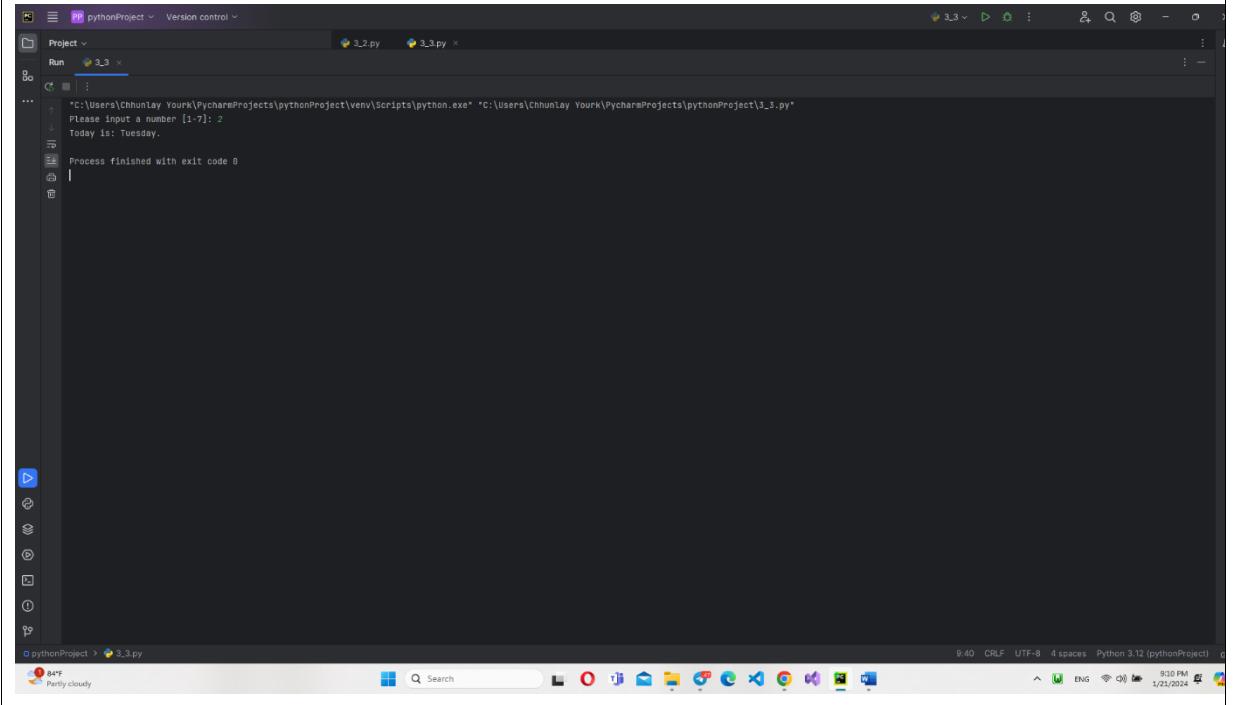


3.3- Please create an application that allow user input a number of week [1 to 7]. Then translate that number as a word [1: Monday, 2 : Tuesday ... 7 : Sunday].

Please Input a number [1-7] : 2

Today is: Tuesday.

Answer:



```
*C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\venv\scripts\python.exe* "C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\s_3.py"
Please input a number [1-7]: 2
Today is: Tuesday.
Process finished with exit code 0
```

3.4- Please create an application that allow user input a shortcut of color. Then translate it as a full word of color [R : Red, B : Blue, G : Green, W : White, Y : Yellow].

Enter a shortcut of color name : R

Your favorite color is : Red.

Answer:



A screenshot of the PyCharm IDE interface. The top bar shows "pythonProject" and "Version control". The main area has a "Run" tab selected, showing a run configuration for "3_4". The terminal window displays the following output:

```
...*c:\Users\Chunlai Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chunlai Yourk\PycharmProjects\pythonProject\3_4.py"
Enter a shortcut of color name [R, B, G, W, Y]: G
Your favorite color is: Green.

Process finished with exit code 0
```

The bottom status bar shows "13:1 CRLF UTF-8 4 spaces Python 3.12 (pythonProject)".

3.5- Please create an application that allow user to input a number of score then accumulate it together and print it as average.

How many score? : 3

Score - 1 : 10.

Score - 2 : 20.

Score - 3 : 30.

The sum = 60

The avg = 20

[Answer:](#)



The screenshot shows the PyCharm IDE interface with a project named "pythonProject". The code editor window displays a file named "3_5.py" containing the following code:

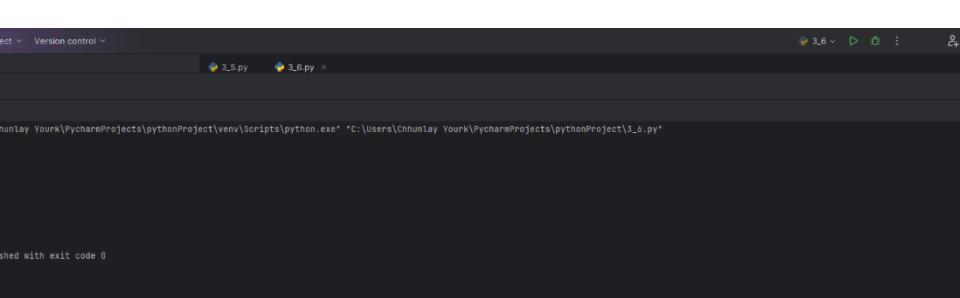
```
C:\Users\Chhunlai Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" *C:\Users\Chhunlai Yourk\PycharmProjects\pythonProject\3_5.py*
How many scores?: 4
Score - 1: 10
Score - 2: 20
Score - 3: 50
Score - 4: 12
=====
The sum = 92.0
The avg = 23.0

Process finished with exit code 0
```

The status bar at the bottom indicates the following details: pythonProject, 3_5.py, 82% F, Partly cloudy, 10:23, CRLF, UTF-8, 4 spaces, Python 3.12 (pythonProject), and a timestamp of 1/21/2024.

3.6- Please using [loop] to writing code to show result like below.

Answer:



The screenshot shows the PyCharm IDE interface. The terminal window displays the following command and its output:

```
"C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3_6.py"
```

Below the command, there is a large password entry field consisting of approximately 20 asterisks (*). The terminal also shows the message "Process finished with exit code 0".

2.7- Please using [loop] to writing code to show result like below.



Answer:

pythonProject Version control

Project Run 3.7

3_5.py 3_6.py 3_7.py

C:\Users\chhunlay.Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\chhunlay.Yourk\PycharmProjects\pythonProject\3_7.py"

Process finished with exit code 0

4:1 CRLF UTF-8 4 spaces Python 3.12 (pythonProject)

Partly cloudy 925 PM ENG 1/21/2024

3.8- Please using [loop] to writing code to show result like below.

*
**

Answer:

Answer:

The screenshot shows the PyCharm IDE interface. The top navigation bar displays the project name "pythonProject" and "Version control". The toolbar includes icons for file operations like New, Open, Save, and Run. The main window has a dark theme. On the left, the Project tool window lists files: 3_5.py, 3_6.py, 3_7.py, and 3_8.py. The "Run" tool window shows the current run configuration "3_8" and the command being executed: "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3_8.py". The status bar at the bottom right indicates the date and time as "5/21/2024 9:27 PM".



3.9- Please using [loop] to writing code to show result like below.

```
*  
**  
***  
****  
*****
```

Answer:

The screenshot shows the PyCharm IDE interface. In the top navigation bar, it says "pythonProject" and "Version control". Below that is the "Run" tab with two files listed: "3_8.py" and "3_9.py". The status bar at the bottom right shows "3.1 CRLF UTF-8 4 spaces Python 3.12 (pythonProject)" and the date/time "9:29 PM 1/21/2024". The main editor area contains the following code:

```
...  
*  
**  
***  
****  
*****  
Process finished with exit code 0
```

The output window shows the printed text: `*****`.

3.10- Please using [loop] to writing code to show result like below.

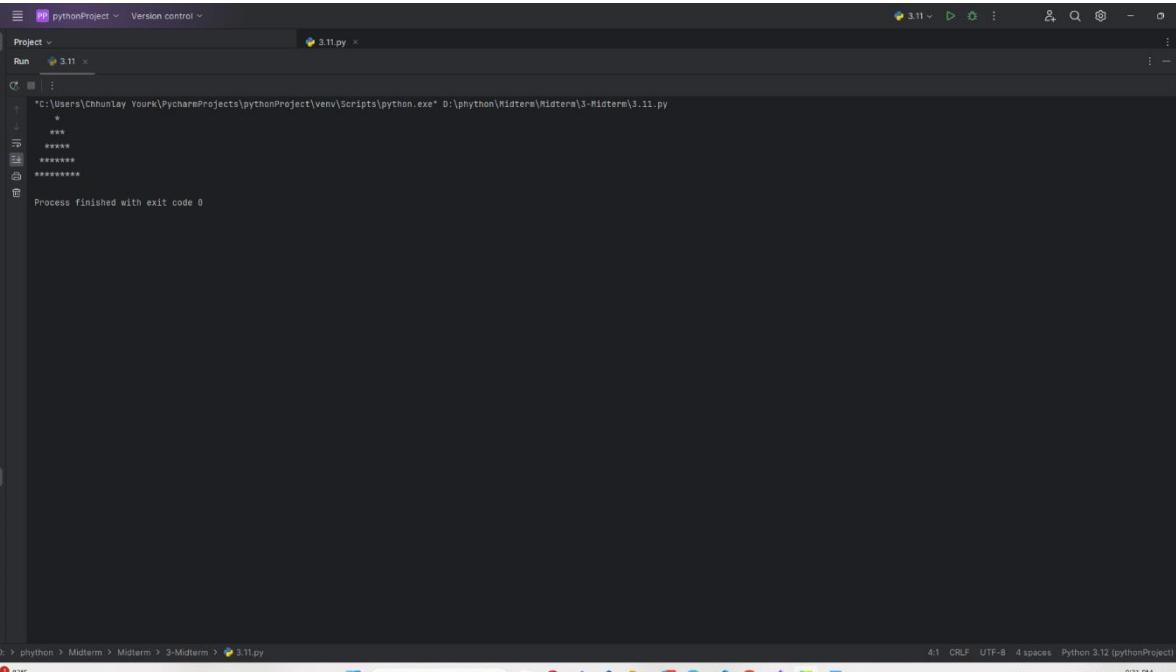
```
*  
**  
***  
****
```

The screenshot shows the PyCharm IDE interface. The top bar displays the project name "pythonProject" and the file "3-10.py". The main area shows a terminal window with the following content:

```
C:\Users\Chhunlai Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\Chhunlai Yourk\PycharmProjects\pythonProject\3-10.py"
*
**
***
*****
Process finished with exit code 0
```

The bottom status bar indicates the file is "3-10.py", the encoding is "UTF-8", the Python version is "3.12 (pythonProject)", and the system status is "Partly cloudy".

3.11- Please using [loop] to writing code to show result like below.

```
*  
***  
*****  
*****  
  
Aswer:  


```
C:\Users\Chhunlay_Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" D:\python\Midterm\Midterm\3-Midterm\3.11.py
*

Process finished with exit code 0
```



D 82°F Partly cloudy



4:1 CR LF UTF-8 4 spaces Python 3.12 (pythonProject) 1/21/2024


```

3.12- Please using [loop] to writing code to show result like below.

*



```

***  

*****  

*****  

*  

*  

***
```

Answer:

```

c:\Users\Chhunlay.Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe D:\python\Midterm\3-Midterm\3.12.py
    *
   ***
  *****
 *****
  ****
   ***
    *
 ***

Process finished with exit code 0
```

3.13- Please writing a program to find the square of the numbers from 1 to 100 by using :

- While
- Do ... Loop
- For ... Next

The output should be below:

Number	Square
1	1
2	4
3	9
.....
.....

Answer:



```
C:\Users\chunlay.Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe D:\python\Midterm\Midterm\3-Midterm\3.13.py
Number Square
1 1
2 4
3 9
4 16
5 25
6 36
7 49
8 64
9 81
10 100
11 121
12 144
13 169
14 196
15 225
16 256
17 289
18 324
19 361
20 400
21 441
22 484
23 529
24 576
25 625
26 676
27 729
28 784
29 841
30 900
31 961
32 1024
33 1089
34 1156
35 1225
36 1296
37 1369
```

3.14- Please writing a program to find the ODD/EVEN of the numbers from 1 to 100:

The output should be below:

```
1 is ODD
2 is EVEN
3 is ODD
.....
.....
```

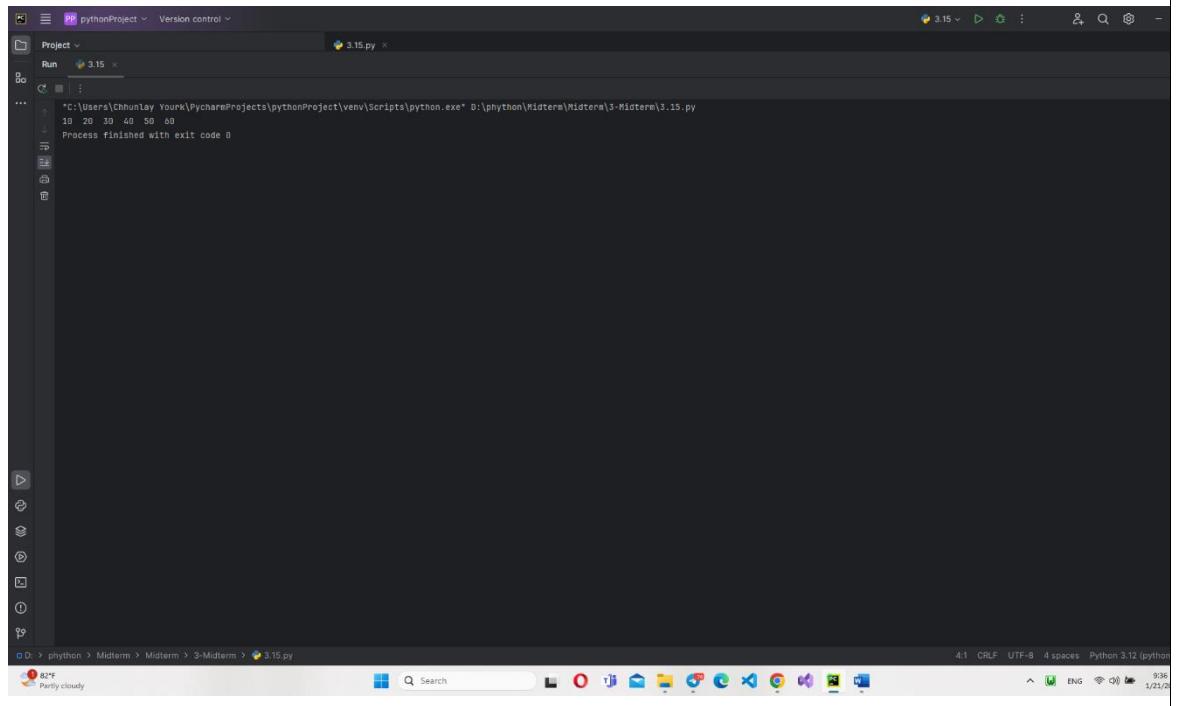
Answer:

```
C:\Users\chunlay.Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe D:\python\Midterm\Midterm\3-Midterm\3.14.py
Number is
1 ODD
2 EVEN
3 ODD
4 EVEN
5 ODD
6 EVEN
7 ODD
8 EVEN
9 ODD
10 EVEN
11 ODD
12 EVEN
13 ODD
14 EVEN
15 ODD
16 EVEN
17 ODD
18 EVEN
19 ODD
20 EVEN
21 ODD
22 EVEN
23 ODD
24 EVEN
25 ODD
26 EVEN
27 ODD
28 EVEN
29 ODD
30 EVEN
31 ODD
32 EVEN
33 ODD
34 EVEN
35 ODD
36 EVEN
37 ODD
```

3.15- Please writing a program to show a series of the numbers like below:

```
10 20 30 40 50 60
```

Answer:

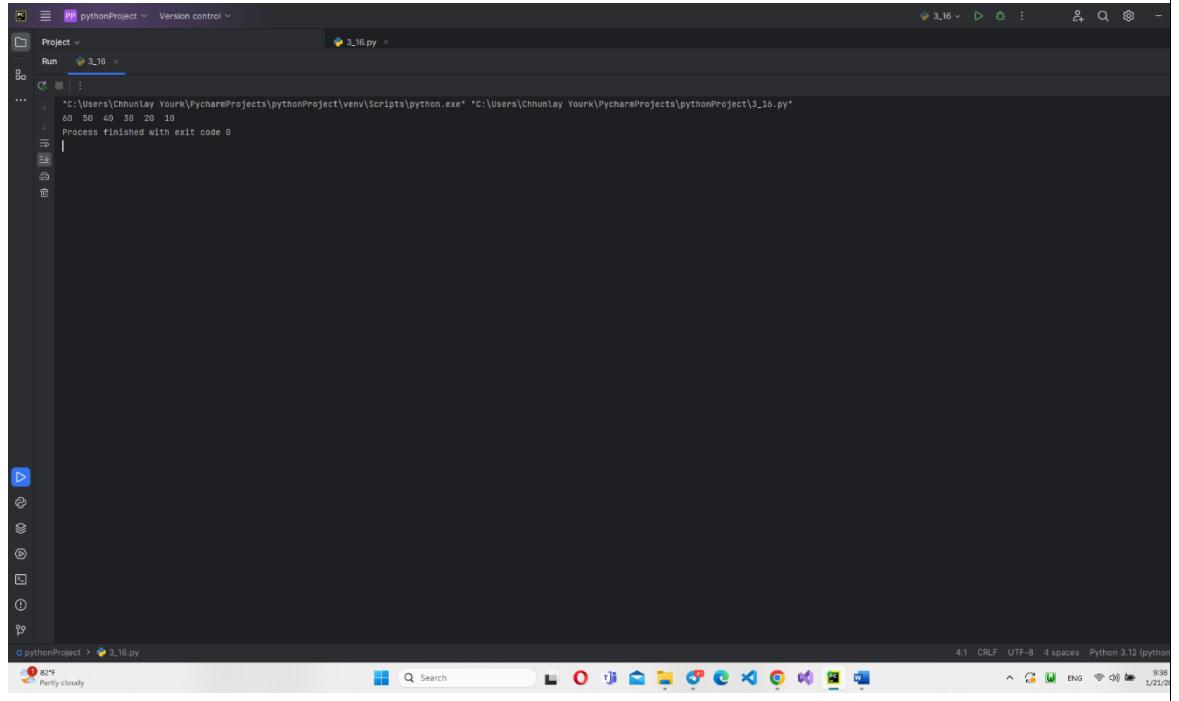


```
"C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" D:\python\Midterm\Midterm\3-Midterm\3.15.py
10 20 30 40 50 60
Process finished with exit code 0
```

3.16- Please writing a program to show a series of the numbers like below:

```
60 50 40 30 20 10
```

Answer:



```
"C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3.16.py"
60 50 40 30 20 10
Process finished with exit code 0
```

3.17- Please writing a program to sum a series of the numbers below (6pt):



a)- sum=1+2+3+....+n = ?

b)- sum=1+3+5+....+n = ?

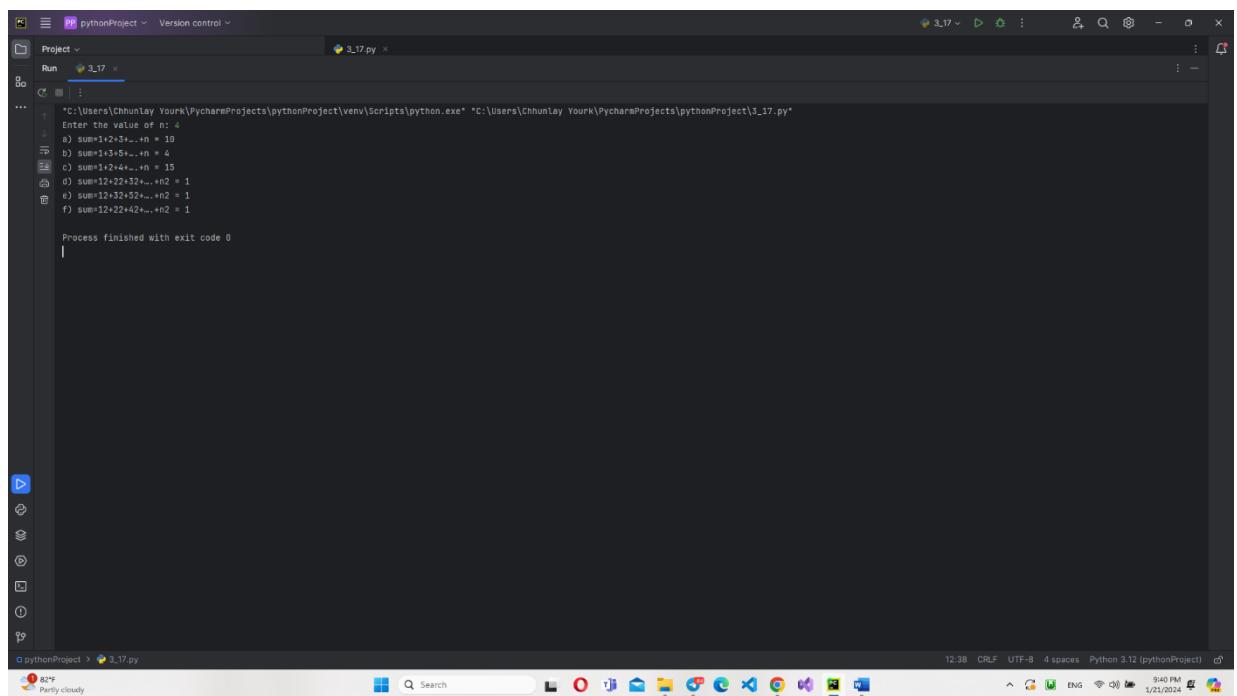
c)- sum=1+2+4+....+n = ?

d)- sum=1²+2²+3²+....+n² = ?

e)- sum=1²+3²+5²+....+n²

f)- sum=1²+2²+4²+....+n²

Answer:



```
pythonProject ✘ Version control ✘
Project ✘ Run 3_17 ✘
...
* C:\Users\Chhunlay.Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe * C:\Users\Chhunlay.Yourk\PycharmProjects\pythonProject\3_17.py*
Enter the value of n: 4
a) sum=1+2+3+..,n= 10
b) sum=1+3+5+..,n= 4
c) sum=1+2+4+..,n= 15
d) sum=12+22+32+..,n=2 = 1
e) sum=12+32+52+..,n=2 = 1
f) sum=12+22+42+..,n=2 = 1
Process finished with exit code 0
```

3.17- Please writing a program to generate the following series of the numbers:

```
1
21
321
4321
54321
654321
7654321
87654321
987654321
```

Answer:



The screenshot shows the PyCharm IDE interface. The project name is 'pythonProject'. In the 'Run' tool window, the '3_17A' run configuration is selected. The output window displays the following text:

```
"C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3_17A.py"
1
21
321
4321
54321
654321
7654321
87654321
987654321

Process finished with exit code 0
```

The status bar at the bottom right indicates: 5:1 CRLF UTF-8 4 spaces Python 3.12 (python).

3.18- Please writing a program to generate the following series of the numbers:

```
1
12
123
1234
12345
123456
1234567
12345678
123456789
```

The screenshot shows the PyCharm IDE interface. The project name is 'pythonProject'. In the 'Run' tab, there is a single run configuration named '3_18'. The output window displays the following text:

```
"C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3_18.py"
1
21
321
4321
54321
654321
7654321
87654321
987654321

Process finished with exit code 0
```

The status bar at the bottom right indicates: 4:1 CRLF UTF-8 4 spaces Python 3.12 (python).

3.19- Please writing a program to generate the following series of the numbers:

987654321

87654321

7654321

654321

54321

4321

321

21

1

Answer:

```
pythonProject > 3_19.py
Process finished with exit code 0
```

3.20- Please writing a program to generate the following series of the numbers:

123456789

12345678

1234567

123456

12345

1234

123

12

1

Answer:



The screenshot shows a PyCharm project named 'pythonProject' with a terminal window titled '3_20.py'. The terminal output shows a sequence of numbers from 1 to 123456789 being printed. The command run is "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3_20.py". The message 'Process finished with exit code 0' is displayed at the end.

3.21- Please writing a program that print a given number whether it is a prime number or not by using :

- While
- Do ... Loop
- For ... Next

Hint of prime number below:

Prime number is a number which is divisible only by 1 and by itself.

3 is a prime number since it is divisible by 1 and 3.

6 is not prime because it is divisible by 1,2 and 3.

[Answer:](#)



The screenshot shows a PyCharm project named 'pythonProject' with two files: '3_20.py' and '3_21.py'. The terminal window displays the output of running '3_21.py'. The output is:

```
"C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\3_21.py"
Enter a number: 3
3 is a prime number.

Process finished with exit code 0
```

The status bar at the bottom right shows the time as 10:28, encoding as CRLF, character set as UTF-8, 4 spaces, and Python 3.12 (pythontest).

3.22- Please writing a program that read a number (n) from the standard keyboard input device, and again read a digit (d) and check whether the digit is present in the number (n) or not, if it is so count how many times it is repeated in the number (n).

For example:

n=12576

Digits to be checked is 5

The digit is present 1 time.

[Answer:](#)

The screenshot shows the PyCharm IDE interface. On the left is the Project tool window, and on the right is the Run tool window. A terminal window titled '3-22.py' is open, displaying the following text:

```
"C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3-22.py"
Enter a number: 12456
Digits to be checked is: 4
The digit 4 is present 1 time(s).

Process finished with exit code 0
```

The status bar at the bottom indicates the environment is 'Python 3.12 (pytho...)'.

3.23- Please writing a program that read a number (n) from the standard keyboard input device, and again read a digit (d) and check whether the digit is present in the number (n) or not, if it is so, find out the position of (d) in the number (n).

For example:

n=75689

Digits to be checked is 5

4 is present at the position 4 from left to right.

5 **Answer:**



```
pythonProject Version control
Project Run 3-23 x
...
Run 3-23 x
...
C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3-23.py"
Enter a number: 98765
Digits to be checked is: 7
7 is present at the position 3 from right to left.

Process finished with exit code 0
```

6

3.24- Please writing a program that read a position number (n) and generate the following form.

For example:

Enter a number : 5 Output : 54321012345	Enter a number : 7 Output : 765432101234567
--	--

Answer:

```
pythonProject Version control
Project Run 3-24 x
...
Run 3-24 x
...
C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3-24.py"
Enter a number: 876543210
876543210765432105432104321034210210100
Process finished with exit code 0
```

3.25- Please writing a program to generate following pyramid of numbers:

For example:

```
0
101
21012
3210123
432101234
54321012345
6543210123456
```

Answer:

```
"C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3-25.py"
0
10
210
3210
43210
543210
Process finished with exit code 0
```

3.26- Please writing a program to solve a general quadratic equation: ($aX^2+bX+c=0$) (4pt)

Algorithm:

```
Variable float a,b,c,x,x1,x2,beta;
Enter the value a,b and c;
1)- Special Case
If a=0 then
x1=x2= -c / a;
End if

2)- Normal Case
Beta=b2 - 4ac;
```



```
If (beta<0) then “No Root”;
```

```
Else
```

```
If (beta=0) then
```

```
x = -b/(2a);
```

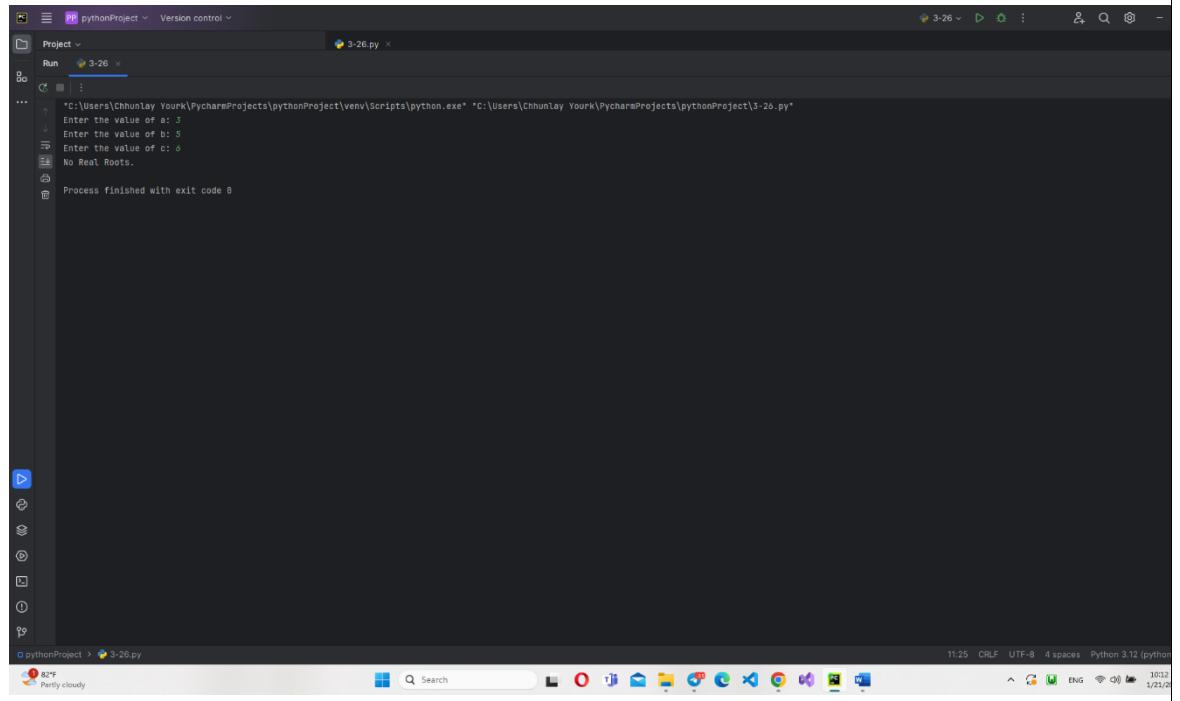
```
else
```

```
x1=(-b-sqrt(beta))/(2a);
```

```
x2=(-b+sqrt(beta))/(2a);
```

```
end if
```

Answer:



```
*c:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3-26.py"
Enter the value of a: 3
Enter the value of b: 5
Enter the value of c: 6
No Real Roots.

Process finished with exit code 0
```

3.27- Please writing a program that let user input score of a subject and generate a grade of the score

whether is A, B, C, D, E, or F.

Algorithm:

Score Range	Grading
100-91	A
81-90	B
71-80	C
61-70	D
50-60	E
<50	F

At the end of program ask user to restart the action, if user choose [no] exit the program.

For Example:



Please enter a score : **50**

Your grade is : **E**

Would you like to continue[y/n] ? : **y**

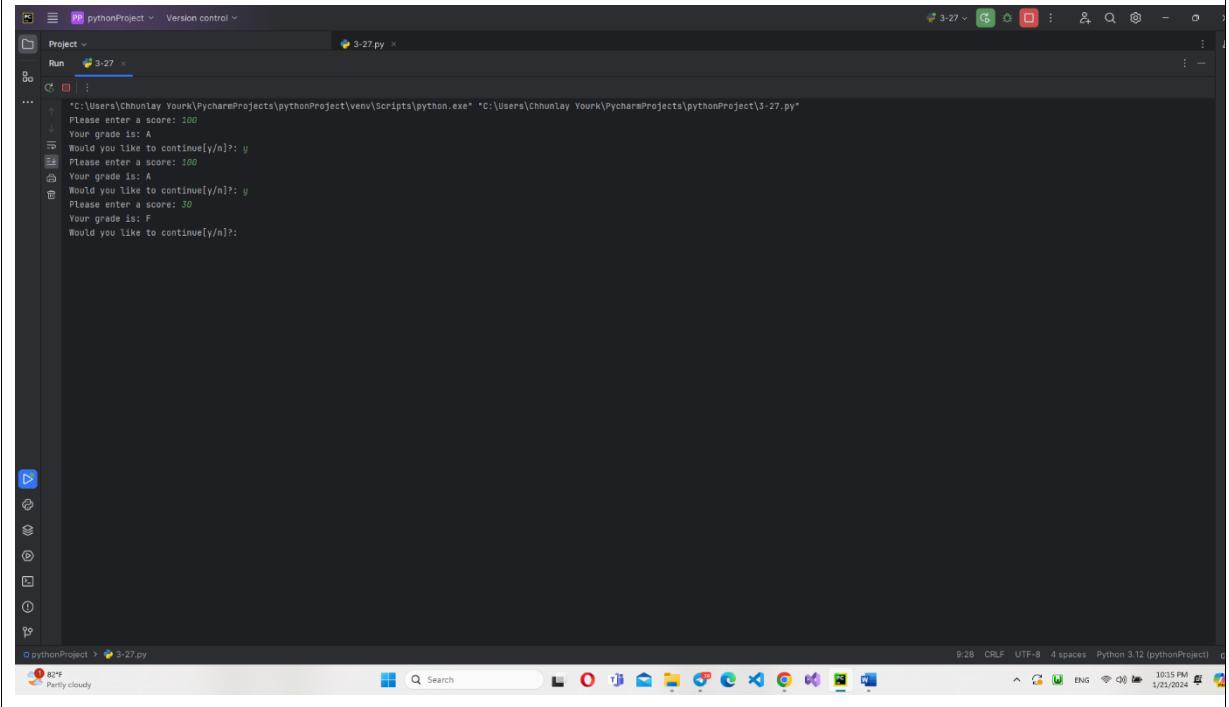
Please enter a score : **100**

Your grade is : **A**

Would you like to continue[y/n] ? : **n**

Good bye!

Answer:



```
Project: pythonProject Version control: 3-27.py x
Run: 3-27.py x
...
Please enter a score: 50
Your grade is: E
Would you like to continue[y/n]?: y
Please enter a score: 100
Your grade is: A
Would you like to continue[y/n]?: y
Please enter a score: 30
Your grade is: F
Would you like to continue[y/n]?:
```

3.28- Please writing a program to solve and discuss the equation:

$$aX + aY = m$$

$$cX + aY = n$$

Asnwer:

```
*C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3-28.py"
Enter the value of a: 3
Enter the value of b: 4
Enter the value of c: 5
Enter the value of m: 7
Enter the value of n: 4
The solution is x = -0.3333333333333333, y = 2.0
Process finished with exit code 0
```

3.29- Please writing a program to calculate the fee of bicycle ticket base on condition below:

- before 17:00 the fee is 100r/hour
- after 17:00 the fee is 200r/hour

Answer:

```
*C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3-29.py"
Enter the current hour: 5
The bicycle ticket fee is: 500 riel.
Process finished with exit code 0
```

3.30- Please writing a program to calculate the selling price for customer of the Golden Rice Shop. The base price is 1200r/kg. If customer buy rice between 100kg to 500kg they get discount 15%, if they buy over 500kg they will get discount 25% off.



For example:

The weight of rice : **50**

Selling Price : **60000**

Would you like to continue[y/n] ? : **y**

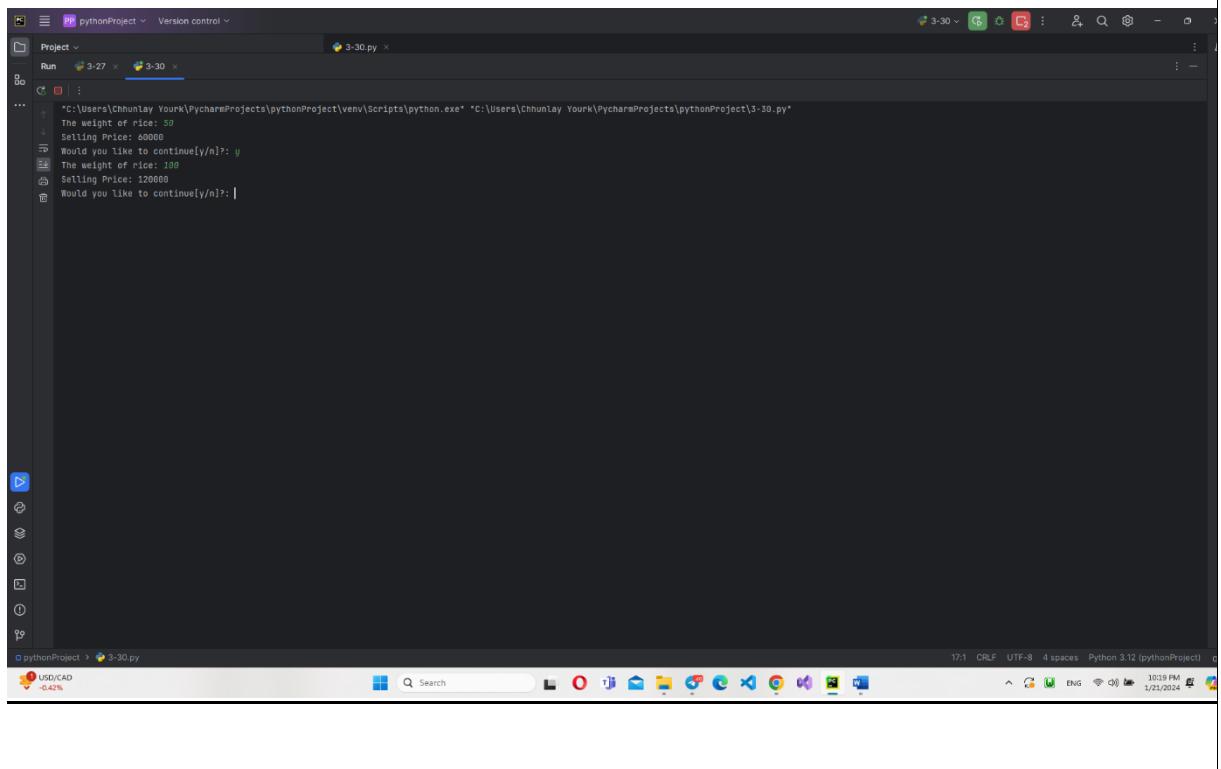
The weight of rice: **100**

Selling Price : **(1200*100)-(1200*100)*15/100**

Would you like to continue[y/n] ? : **n**

Good bye!

Answer:

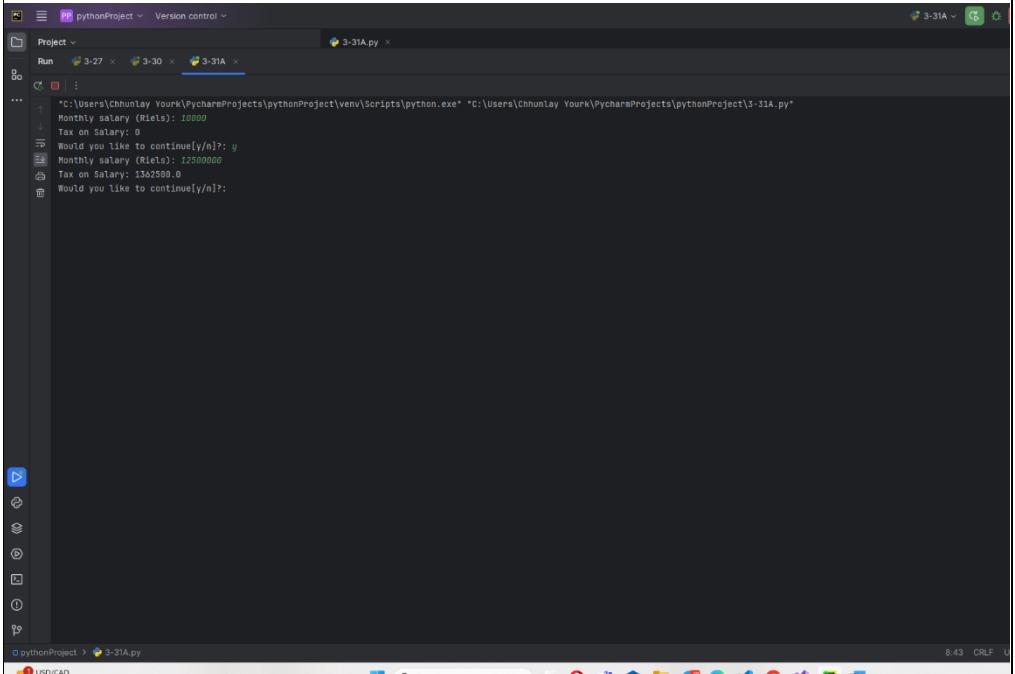


```
*C:\Users\Chunlai Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\Chunlai Yourk\PycharmProjects\pythonProject\3-30.py"
The weight of rice: 50
Selling Price: 60000
Would you like to continue[y/n]? : y
The weight of rice: 100
Selling Price: 120000
Would you like to continue[y/n]? :
```

3.31- Please writing a program to calculate the **tax on salary** of a staff for ABC Company. The program

can be test many time.

Monthly salary (Riels)	Rate	Syntax of Calculation
0 - 500,000	0%	0
500,001 - 1,250,000	5%	Tax on Salary=(Salary X 5%) - 25000
1,250,001 - 8,500,000	10 %	Tax on Salary=(Salary X 10%) - 87500

8,500,001 - 12,500,000	15 %	Tax on Salary=(Salary X 15%) - 512500
12,500,001 - upwards	20 %	Tax on Salary=(Salary X 20%) - 1137000
Answer:		
 <pre>... "C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\3-31A.py" Monthly salary (Riel): 10000 Tax on Salary: 0 Would you like to continue[y/n]?: y Monthly salary (Riel): 12500000 Tax on Salary: 1362500.0 Would you like to continue[y/n]?:</pre>		

3.31- Please writing a program to calculate the Insurance Wage on salary of a staff for ABC Company.

The program can be test many time.

Monthly Wage (Riel)	Assumed Wage (Riel)
Below 200,000	200,000
200,001-250,000	225,000
250,001-300,000	275,000
300,001-350,000	325,000
350,001-400,000	375,000
400,001-450,000	425,000
450,001-500,000	475,000

500,001- 550,000	525,000
550,001- 600,000	575,000
600,001- 650,000	625,000
650,001- 700,000	675,000
700,001- 750,000	725,000
750,001- 800,000	775,000
800,001- 850,000	825,000
850,001- 900,000	875,000
900,001- 950,000	925,000
950,001- 1,000,00 0	975,000
1,000,00 1 up	1,000,000

answer

```
*C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe* "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3-31B.py"
Monthly Wage (Riel): 200000
Assumed Wage: 200000
EP Would you like to continue[y/n]?
```

3.32- Please writing a program to calculate the Exchange Money from Dollar to Riel. The program can be test many time.

For example:

Please Enter Dollar : 50

Please Enter Exchange Rate : **4000**
 Exchange Money Dollar to Riel is : **200000**
 Would you like to continue[y/n] ? : **y**
 Please Enter Dollar : **10**
 Please Enter Exchange Rate : **4000**
 Exchange Money Dollar to Riel is : **40000**
 Would you like to continue[y/n] ? : **n**
Good bye!

Answer:

<img alt="Screenshot of PyCharm IDE showing a Python project named 'pythonProject'. The file '3-32.py' is open in the editor. The code in the editor is as follows:
 *C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\Chunlay Yourk\PycharmProjects\pythonProject\3-32.py"
 1 Please Enter Exchange Rate: 4000
 2 Exchange Money Dollar to Riel is: 40000.0
 3 Would you like to continue(y/n)?:
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Answer:

```
*C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\scripts\python.exe* "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\3-33.py"
Please Enter Riel: 40000
Please Enter Exchange Rate: 4.000
Exchange Money Riel to Dollar is: 10.0
Would you like to continue(y/n)?:
```

Chapter 4 Method

4.1- Write a program to calculate two input number from keyboard and create function to sum, multiply, division, and minus.

IPO Chart:

Input	Process	Output
Two number N1,N2	Get Two numbers Sum=N1+N2 Minus=N1-N2 Multiply=N1*N2 Division=N1/N2	Display value of: Sum Minus Multi ply Divis ion
Answer:		

```

1 *C:\Users\Chhunlai Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe* "C:\Users\Chhunlai Yourk\Pychar
2 Enter the first number: 3
3 Enter the second number: 4
4 Sum: 7.0
5 Minus: -1.0
6 Multiply: 12.0
7 Division: 0.75
8
9 Process finished with exit code 0
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```

4.2- Write a program to accept a number (N) from keyboard and create function to calculate the factorial value.

IPO Chart:

Input	Process	Output
Input N	Get N Fact=N!=N *(N-1)*....*1	Display Fact;
answer		

4.3- Write a program to accept a number (N) from keyboard and create function to find out (N) is ODD or EVEN.

IPO Chart:

Input	Proce ss	Output
Input N	Get N If N Mod 2=0 Then Print EVE Else Print ODD End If	Display ODD/EVEN;
Answer:		

```

1 *C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Chhunlay Yourk/PycharmProjects/pythonProject/4-3.py"
2 Enter a number: 3
3 The number is: 000
4
5 Process finished with exit code 0
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```

4.4- Write a program to accept two number from keyboard and create method to print out the maximum value.

IPO Chart:

Input	Proce ss	Outpu t
Input N1,N2	Get N1,N2 Find Max	Display Max;
Answer:		

```

1 *C:\Users\Chhunlay_Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users\Chhunlay_Yourk\PycharmProjects\pythonProject\4-4.py"
2 Enter the first number: 10
3 Enter the second number: 20
4 The maximum value is: 20.0
5
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```

4.5- Write a program to accept three number from keyboard and create method to print out the maximum and minimum value.

IPO Chart:

Input	Process	Output
Input N1,N2,N3	Get N1,N2, N3 Find Max; Find Max Find Min;	Display Max; Display Min;
Answer:		

4.6- Write a program to accept five number from keyboard and create method to print out the maximum and minimum value.

IPO Chart:

Input	Process	Output
Input N1,N2,N3,N4,N5	Get N1,N2,N3,N4,N5 Find Max Find Min	Display Max; Display Min;
Answer:		

```

1 *C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Chhunlay Yourk/Pycha
2 Enter the first number: 10
3 Enter the second number: 20
4 Enter the third number: 40
5 Enter the fourth number: 50
6 Enter the fifth number: 20
7 The maximum value is: 50.0
8 The minimum value is: 10.0
9
10 Process finished with exit code 0
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```

4.7- Write a program to accept a number from keyboard and create **recursive function** to find out the factorial value.

IPO Chart:

Input	Proces s	Output
Input N	Get N Calcul ate Factori al;	Displa y Factori al;
Answer:		

The screenshot shows the PyCharm IDE interface. On the left is the Project tool window displaying a list of Python files (e.g., 3-10.py, 3-22.py, ..., 4-7.py). In the center is the Run tool window, which is currently active. It shows the output of a run named '4-7'. The terminal output is as follows:

```
*C:\Users\Chhunlay_YourK\PycharmProjects\pythonProject\venv\Scripts\python.exe* "C:\Users\Chhunlay_YourK\PycharmProjects\pythonProject\4-7.py"
Enter a number: 5
Factorial of 5 is: 120
Process finished with exit code 0
```

4.8- Write a program to accept a number from keyboard and create **recursive function** to calculate the series of value like below:

1. Sum = $1+2+3+\dots+N$
2. Sum = $1+3+5+\dots+N$
3. Sum = $1+2+4+\dots+N$
4. Mul = $1*2*3*\dots*N$
5. Answer:

```

* * * * *
3-22.py
3-23.py
3-24.py
3-25.py
3-26.py
3-27.py
3-28.py
3-29.py
3-30.py
3-31a.py
3-31b.py
3-32.py
3-33.py
3-2.py
3-3.py
3-4.py
3-5.py
3-6.py
3-7.py
3-8.py
3-9.py
3-16.py
3-17a.py
3-17b.py
3-18.py
3-19.py
3-20.py
3-21.py
4-1.py
4-2.py
4-3.py
4-4.py
4-5.py
4-6.py
4-7.py
4-8.py
before_new_year.py
calculate.py

```

pythonProject > 4-8.py

9:35 CRLF UTF-8 4 spaces Python 3.12 (pythonProject)

4.9- Write a program to accept five score from keyboard then print out the average value by using method.

IPO Chart:

Input	Process	Output
Input Score1,Score2,Score3,Score4,Score5	Get five score AVG=(Score1+...+ Score5)/5	Disp lay AVG ;
Answer:		

```

1 *C:\Users\Chunulay YourK\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/chunulay/PycharmProjects/pythonProject/4-9.py"
2 Enter score 1: 20
3 Enter score 2: 30
4 Enter score 3: 40
5 Enter score 4: 60
6 Enter score 5: 90
7 Average: 48.0
8
9 Process finished with exit code 0
10
11
12
13
14
15
16

```

4.10- Write a program to accept five score from keyboard then print out the **grade** status by using method.

Algorithm:

Score Range	Grading
100-91	A
81-90	B
71-80	C
61-70	D
50-60	E
<50	F
Answer:	

```

pythonProject > Run 4-10 >
C:\Users\Chhunlay_YourK\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\Chhunlay_YourK\PycharmProjects\pythonProject\4-10.py"
1 Enter score 1: 20
2 Enter score 2: 30
3 Enter score 3: 40
4 Enter score 4: 60
5 Enter score 5: 80
6
7 Average Score: 46.0
8 Grade: F
9
10 Process finished with exit code 0
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```

IPO Chart:

Input	Process	Output
Input Score1,Score2,Score3,Score4,Score5	Get five score $AVG=(Score1+...+Score5)/5$ Generate Grade	Print Grade;

4.11- Write method to find the cube of any three number.

IPO Chart:

Input	Proces	Outp
Input N1,N2,N3	Get 3 Numbe r Calcul ate Cube	Displ ay Cube;
Answer:		

The screenshot shows a PyCharm project named "pythonProject". In the terminal window, a script named "4-11.py" is being run. The output shows the script prompting for three numbers (3, 4, and 7) and calculating their cubes (27.0, 64.0, and 343.0). The process exits with code 0.

```

1 *C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Chhunlay Yourk/PycharmProjects/pythonProject/4-11.py"
2 Enter the first number: 3
3 Enter the second number: 4
4 Enter the third number: 7
5 Cube of 3.0: 27.0
6 Cube of 4.0: 64.0
7 Cube of 7.0: 343.0
8
9 Process finished with exit code 0
10
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18

```

4.12- Write method to find the area of circle.

IPO Chart:

Input	Process	Output
Input PI,R	Get PI,R Calculate Circle Area=PI $*R^2$ (PI=3.14)	Display Circle Area;
Answer:		

```

* C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Chhunlay Yourk/PycharmProjects/pythonProject/4-12.py"
Enter the radius of the circle: 5.16
Area of the circle: 30.9746927333925
Process finished with exit code 0

```

4.13- Write method to swap two data items.

IPO Chart:

Input	Proce ss	Outpu t
Input N,M	Get N,M; Displ ay N,M;	Displ ay N,M;
Answer:	Swap N<- >M;	

The screenshot shows the PyCharm IDE interface. On the left is the Project tool window displaying a list of Python files. In the center-right is the Run tool window, which is currently active. It shows the output of a script named '4-13.py'. The output text is as follows:

```

1 *C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Chhunlay Yourk/PycharmProjects/pythonProject/4-13.py"
2 Enter the value for N: 6
3 Enter the value for M: 3
4 Before swap: N = 6.0, M = 3.0
5 After swap: N = 3.0, M = 6.0
6
7 Process finished with exit code 0
8
9
10
11
12
13

```

The status bar at the bottom indicates the current time as 9:44 and the file as CRLF.

4.14- Write method to calculate the exchange money from Dollar to Riel.

IPO Chart:

Input	Process	Output
Input Dollar, ExchangeRate	Get Dollar, Exchange Rate; Riel=Dolla r * Exchange Rate	Displ ay Riel
Answer:		

```

1 *C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe* "C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\4-14.py"
2 Enter the amount in Dollar: 100
3 Enter the exchange rate: 4100
4 Exchange Money Dollar to Riel: 410000.0
5
6 Process finished with exit code 0
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```

4.15- Write method to calculate the exchange money from Riel to Dollar.

IPO Chart:

Input	Process	Output
Input Riel, ExchangeRate	Get Riel, Exchange Rate; Dollar=Rie l / Exchange Rate	Disp ay Dolla r
Answer:		

```

pythonProject Version control
Project Run 4-15
C:\Users\Chhunlay Yourk\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Chhunlay Yourk/PycharmProjects/pythonProject/4-15.py"
Enter the amount in Riel: 400000
Enter the exchange rate: 40000
Exchange Money Riel to Dollar: 50.0
Process finished with exit code 0

```

4.16- ABC MFI is a Micro Finance Institute that provide the loan to customer. Please write method to generate monthly payment like table below.

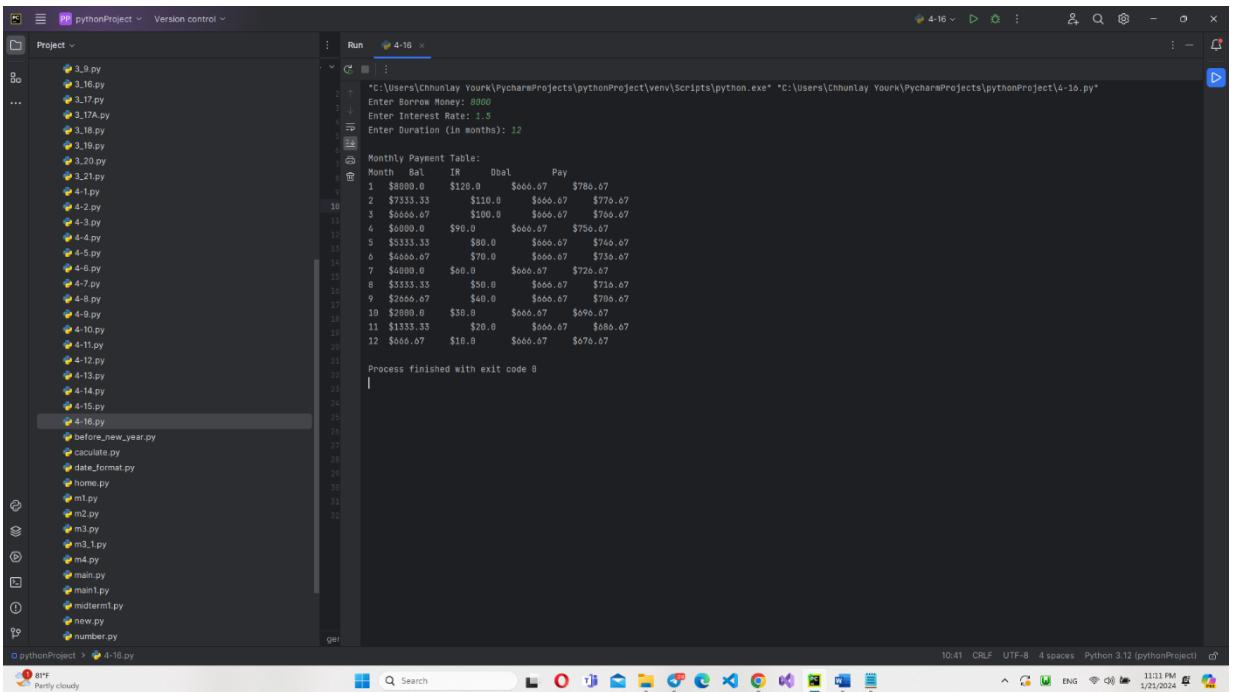
តារាងការណែនកម្មគិតជាមុខរបៀប				
ប្រាក់(Borrow Money)	\$ 8,000.00			
អាយុរាយ(Interest Rate)		1.5		
Duration(Month)		12		
ref (mm)	ប្រាក់ (Bal)	អាយុរាយ (IR)	ប្រាក់ដែលត្រូវ (Dbal)	ប្រាក់ចូល (Pay)
1	\$ 8,000.00	\$ 120.00	\$ 666.67	\$ 786.67
2	\$ 7,333.33	\$ 110.00	\$ 666.67	\$ 776.67
3	\$ 6,666.67	\$ 100.00	\$ 666.67	\$ 766.67
4	\$ 6,000.00	\$ 90.00	\$ 666.67	\$ 756.67
5	\$ 5,333.33	\$ 80.00	\$ 666.67	\$ 746.67
6	\$ 4,666.67	\$ 70.00	\$ 666.67	\$ 736.67
7	\$ 4,000.00	\$ 60.00	\$ 666.67	\$ 726.67
8	\$ 3,333.33	\$ 50.00	\$ 666.67	\$ 716.67
9	\$ 2,666.67	\$ 40.00	\$ 666.67	\$ 706.67
10	\$ 2,000.00	\$ 30.00	\$ 666.67	\$ 696.67
11	\$ 1,333.33	\$ 20.00	\$ 666.67	\$ 686.67
12	\$ 666.67	\$ 10.00	\$ 666.67	\$ 676.67

IPO Chart:

Input	Process	Output
Input Borrow, Interest, Duration	Get Borrow, Interest, Duration	

	$Dbal = Borrow / Duration$	
Month - 1	$Bal_1 = Borrow$ $IR_1 = (Bal_1 * Interest) / 100$ $Pay_1 = Dbal + IR_1$	Display Monthly Payment Table
Month – 2 to N	$Bal_2 = Bal_1 - Dbal$ $IR_2 = (Bal_2 * Interest) / 100$ $Pay_2 = Dbal + IR_2$	

Answer



```

Project: PythonProject Version control: None
Run: 4-16.py
C:\Users\Chhunlay_YourK\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\Chhunlay_YourK\PycharmProjects\pythonProject\4-16.py"
Enter Borrow Money: 8000
Enter Interest Rate: 1.5
Enter Duration (in months): 12
Monthly Payment Table:
Month Bal IR Dbal Pay
1 $8000.0 $120.0 $666.67 $786.67
2 $7333.33 $110.0 $666.67 $775.67
3 $6666.67 $100.0 $666.67 $765.67
4 $6000.0 $90.0 $666.67 $755.67
5 $5333.33 $80.0 $666.67 $745.67
6 $4666.67 $70.0 $666.67 $735.67
7 $4000.0 $60.0 $666.67 $725.67
8 $3333.33 $50.0 $666.67 $715.67
9 $2666.67 $40.0 $666.67 $705.67
10 $2000.0 $30.0 $666.67 $695.67
11 $1333.33 $20.0 $666.67 $685.67
12 $666.67 $10.0 $666.67 $676.67
Process finished with exit code 0

```

The screenshot shows the PyCharm IDE interface with the project structure on the left and the code editor on the right. The code editor displays the execution of the file '4-16.py'. The terminal output shows the program prompting for borrow money (\$8000), interest rate (1.5%), and duration (12 months). It then prints a 'Monthly Payment Table' with columns for Month, Bal (Balance), IR (Interest Rate), Dbal (Debt Balance), and Pay (Payment). The table spans 12 rows, showing the balance decreasing from \$8000.00 to \$666.67 over 12 months, with payments ranging from \$786.67 to \$676.67.