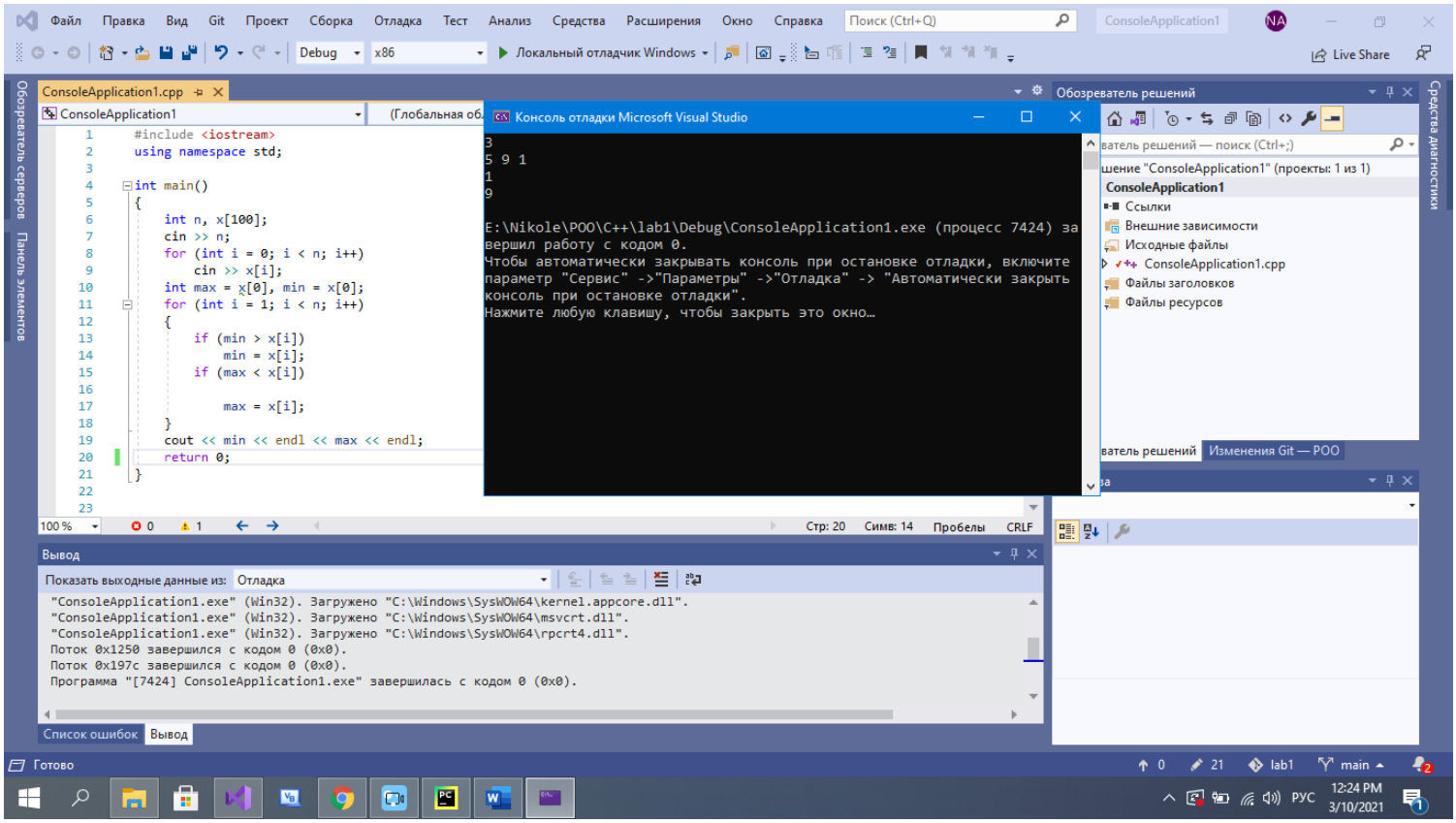
Laborator 1

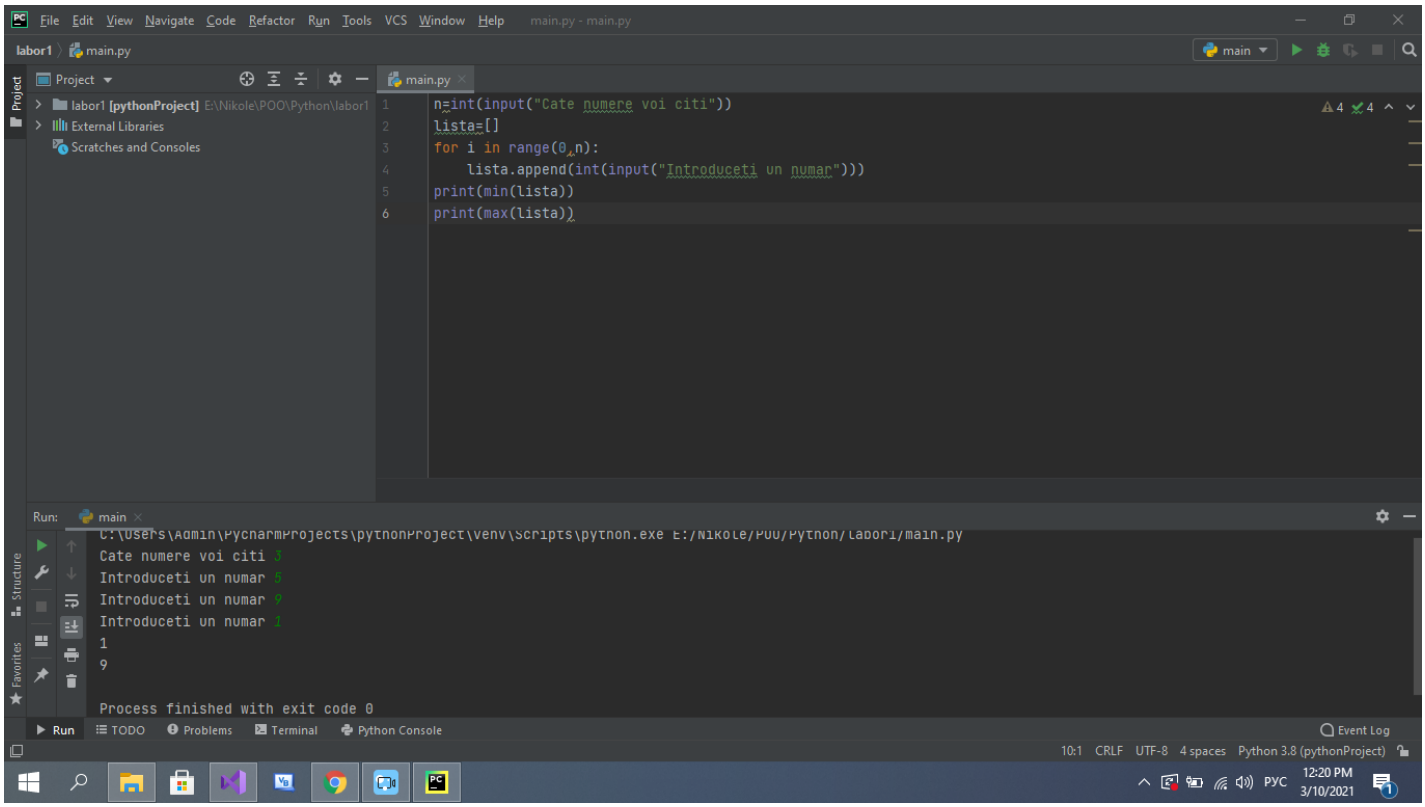
1. Primul pas a fost instalarea aplicațiilor de lucru Visual Studio și Pycharm (printscreen-ul afișează o parte din aplicațiile instalate pe laptop din Panel Control) .

Microsoft Visual Studio 2010 Express Prerequisites x6...	Microsoft Corporation	3/1/2021	4.06 МБ	10.0.30319
Microsoft Visual Studio Installer	Microsoft Corporation	2/22/2021		2.8.3077.1211
Microsoft XNA Framework Redistributable 4.0 Refresh	Microsoft Corporation	2/15/2021	10.5 МБ	4.0.30901.0
Movavi Video Editor Plus 2021	Movavi	2/15/2021	263 МБ	21.1.0
OEM Application Profile	Advanced Micro Devices, Inc.	2/15/2021	9.00 КБ	1.00.0000
OpenAL		2/15/2021		
PyCharm Community Edition 2020.3.3	JetBrains s.r.o.	3/2/2021		203.7148.72
Python 3.8.6 (64-bit)	Python Software Foundation	3/2/2021	101 МБ	3.8.6150.0
Python Launcher	Python Software Foundation	3/2/2021	1.78 МБ	3.8.7205.0
StartIsBack++	startisback.com	2/15/2021		2.9.8
Telegram Desktop version 2.6.1	Telegram FZ-LLC	3/1/2021	77.3 МБ	2.6.1
UltraUXThemePatcher	Manuel Hoefs (Zottel)	2/15/2021		4.1.1.0
Visual Studio 2010 Tools for SQL Server Compact 3.5 S...	Microsoft Corporation	3/1/2021	10.7 МБ	4.0.8080.0
Visual Studio Community 2019	Microsoft Corporation	2/22/2021		16.8.31005.135
Vulkan Run Time Libraries 1.0.37.0	LunarG, Inc.	2/15/2021	1.66 МБ	1.0.37.0
Windows SDK AddOn	Microsoft Corporation	2/22/2021	152 КБ	10.1.0.0

2. Verificarea codului dat ca exemplu la curs în C++

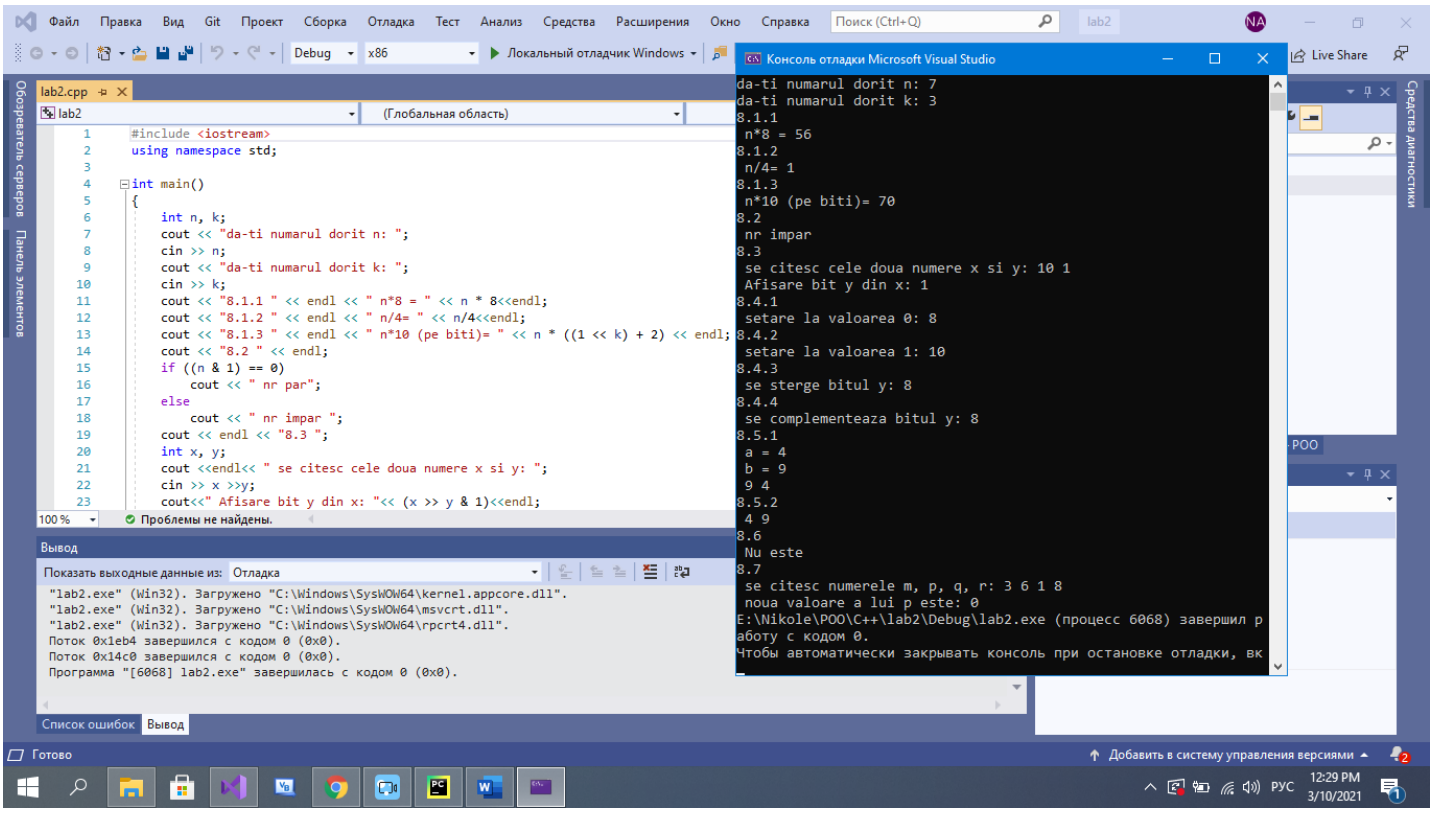


3. Verificarea codului dat ca exemplu la curs în limbaj python.



Laborator 2

1. Rezolvarea problemelor propuse în C++



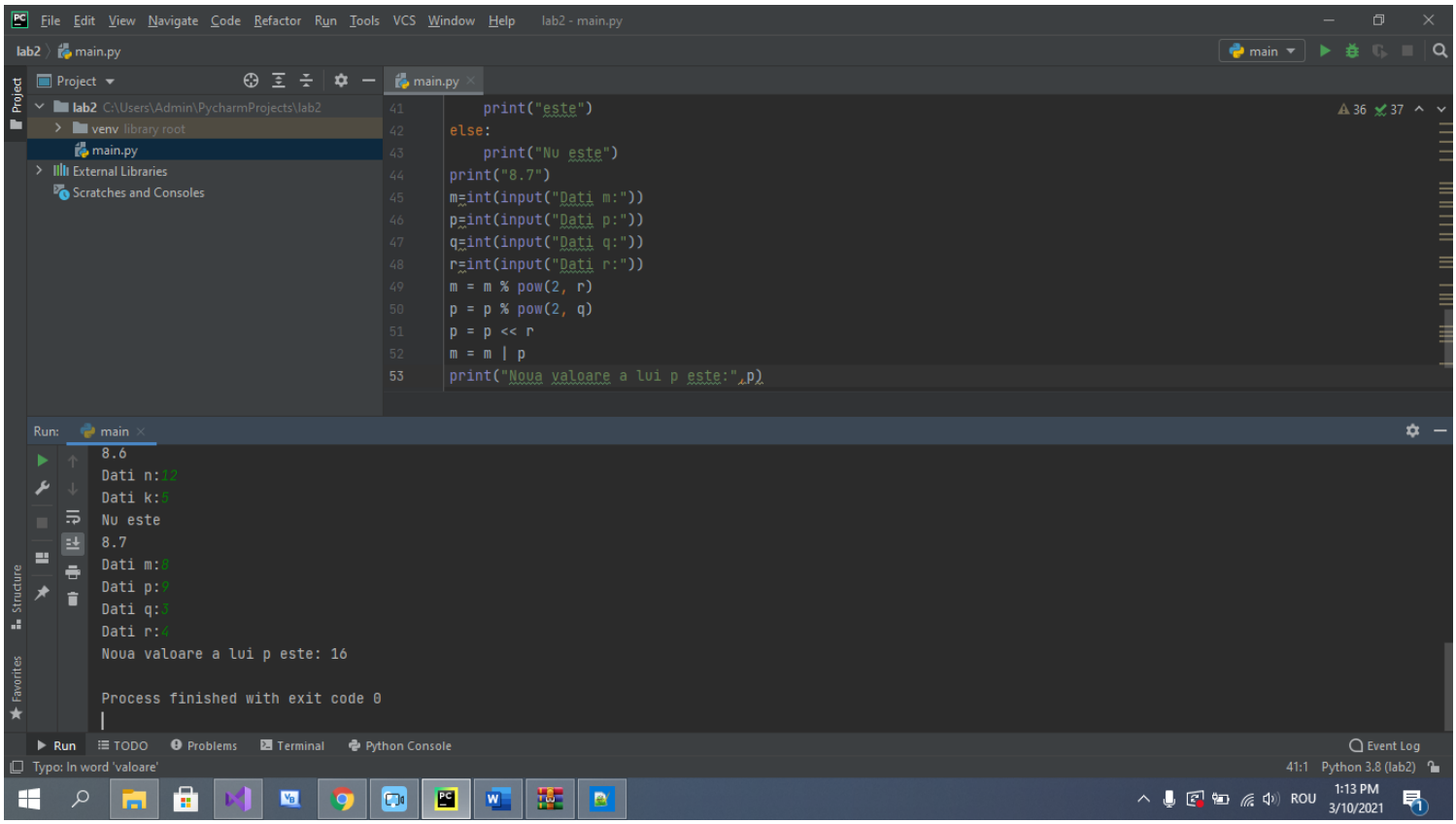
Codul în C++

```cpp
#include <iostream>
using namespace std;

int main()
{
	int n, k;
	cout << "da-ti numarul dorit n: ";
	cin >> n;
	cout << "da-ti numarul dorit k: ";
	cin >> k;
	cout << "8.1.1 " << endl << " n*8 = " << n * 8<<endl;
	cout << "8.1.2 " << endl << " n/4= " << n/4<<endl;
	cout << "8.1.3 " << endl << " n*10 (pe biti)= " << n * ((1 << k) + 2) << endl;
	cout << "8.2 " << endl;
	if ((n & 1) == 0)
		cout << " nr par";
	else
		cout << " nr impar ";
	cout << endl << "8.3 ";
	int x, y;
	cout <<endl<< " se citesc cele doua numere x si y: ";
	cin >> x >>y;
	cout<<" Afisare bit y din x: "<< (x >> y & 1)<<endl;
	cout << "8.4.1" << endl;
	cout << " setare la valoarea 0: " << (x & (255 ^ (1 << y))) << endl;
	cout << "8.4.2" << endl;
	cout << " setare la valoarea 1: " << (x | (1 << y)) << endl;
	cout << "8.4.3"<<endl;
	cout << " se sterge bitul y: " << (x & ~(1 << y));
	cout << endl << "8.4.4" << endl;
	cout << " se complementeaza bitul y: " << (x ^ 1 << y)<<endl;
	cout << "8.5.1 "<<endl;
	int a, b;
	cout << " a = ";
	cin >> a;
	cout << " b = ";
	cin>> b;
	a = a + b;
	b = a - b;
	a = a - b;
	cout <<" "<< a << " " << b<<endl;
	cout << "8.5.2" << endl;
	a = a ^ b;
	b = a ^ b;
	a = a ^ b;
	cout <<" "<< a << " " << b << endl;
	cout << "8.6"<<endl;
	if (n == (1 << k))
		cout << " Este ";
	else
		cout << " Nu este ";
	cout << endl << "8.7" << endl;
	int m, p, q, r;
	cout << " se citesc numerele m, p, q, r: ";
	cin >> m >> p >> q >> r;
	m = m % (int)pow(2, r);
	p = p % (int)pow(2, q);
	p = p << r;
```

```
        m = m | p;
        cout << " noua valoare a lui p este: " << p;
}
```

2. Varianta Python



Codul Python:

```
n=int(input("Dati numarul dorit:"))
print("8.1.1")
print("n*8=",n*8)
print("8.1.2")
print("Catul impartirii lui n la 4 este ",n/4)
print("8.1.3")
print("n*10 cu operatorii logici de deplasare la nivel de
bit=",(n<<2<<1)+(n<<1))
print("8.2")
if((n&1)==0):
    print("Nr par")
else:
    print("Nr impar")
print("8.3")
x=int(input("Dati x:"))
n=int(input("Dati n:"))
print("Bitul n din x este:",(x & (1<<n)))
print("8.4.1")
print("setarea n la valoarea 0: ",(x & (255 ^ (1 << n))))
print("setarea n la valoarea 1:",(x | (1 << n)))
```

```
print("8.4.3")
print("șterge bitul n:",(x & ~(1 << n)))
print("8.4.4")
print("complementează bitul n:",(x ^ 1 << n))
print("8.5.1")
a=int(input("Dati a:"))
b=int(input("Dati b:"))
a = a + b
b = a - b
a = a - b
print(a," ",b)
a=int(input("Dati a:"))
b=int(input("Dati b:"))
a = a ^ b
b = a ^ b
a = a ^ b
print(a," ",b)
print("8.6")
n=int(input("Dati n:"))
k=int(input("Dati k:"))
if (n == (1<<k)):
    print("este")
else:
    print("Nu este")
print("8.7")
m=int(input("Dati m:"))
p=int(input("Dati p:"))
q=int(input("Dati q:"))
r=int(input("Dati r:"))
m = m % pow(2, r)
p = p % pow(2, q)
p = p << r
m = m | p
print("Noua valoare a lui p este:",p)
```