

CODE:

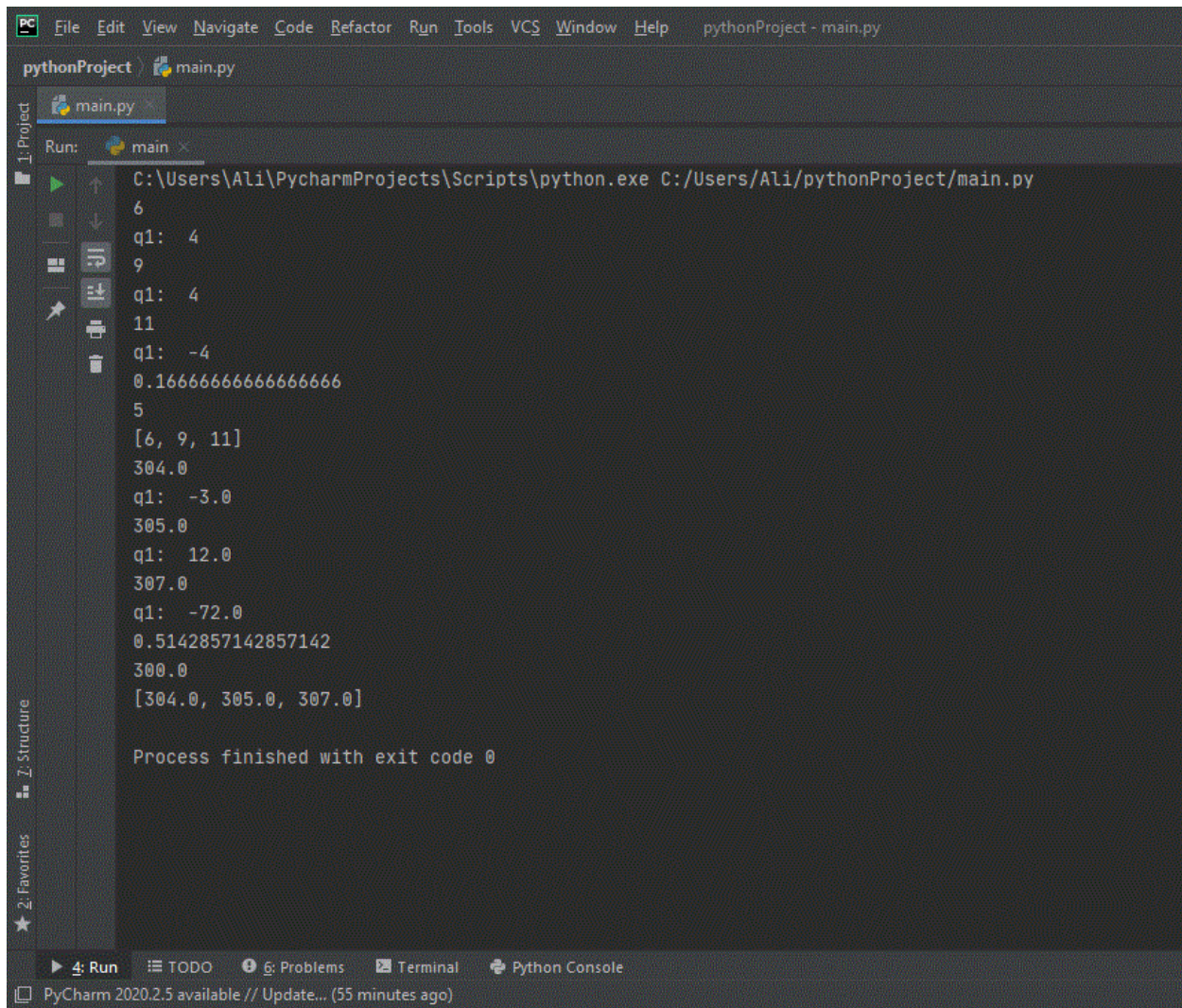
```
def funLagrangeDynamically(arr, x):
    arr2D = np.array( [ [1,1], [2,4] , [5,10] ] , dtype=float)
    res = 0
    for i in range(len(arr)): # 3
        otherValues = []
        #xn = 0
        for j in range(len(arr)):#2
            if (i == j):
                xn = arr[i][0]
                iIndexForY = i
            else:
                otherValues.append(arr[j][0])
        #L0 = ( (x - x1)(x -x2)) / (x0 - x1) ( x0 - x2) ) = q1 / q2
        q1 =1
        q2 = 1
        for o in range(len(otherValues)):
            print(otherValues[o])
            q1 *= x- otherValues[o]
            q2 *= xn- otherValues[o]
            print("q1: ", q1)
        print( q1 / q2)
        L = q1 / q2
        res += L*arr2D[iIndexForY][1]
        print(xn)
        print(otherValues)
    return res

import numpy as np
arr2D = np.array( [ [1,1], [2,4] , [5,10] ] , dtype=float)
arr2D = np.array ( [[5,12],[6,13],[9,14],[11,16]])
funLagrangeDynamically(arr2D,10)#14.6663
import numpy as np
arr2D = np.array([[300,2.4771], [304, 2.4829], [305, 2.4843], [307, 2.4871]])
#2.4786
funLagrangeDynamically(arr2D,301)#14.6663
```

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NC LAB#12

OUTPUT:



The image shows a PyCharm IDE window with a dark theme. The top menu bar includes File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, and Help. The title bar says 'pythonProject - main.py'. The left sidebar has tabs for '1. Project' and '2. Favorites', with '1. Project' selected. The 'Run' tab is active, showing the command 'C:\Users\Ali\PycharmProjects\Scripts\python.exe C:/Users/Ali/pythonProject/main.py' and its output. The output consists of several lines of text, including numbers, 'q1:' prompts, and lists. The bottom status bar shows 'PyCharm 2020.2.5 available // Update... (55 minutes ago)'.

```
C:\Users\Ali\PycharmProjects\Scripts\python.exe C:/Users/Ali/pythonProject/main.py
6
q1: 4
9
q1: 4
11
q1: -4
0.16666666666666666
5
[6, 9, 11]
304.0
q1: -3.0
305.0
q1: 12.0
307.0
q1: -72.0
0.5142857142857142
300.0
[304.0, 305.0, 307.0]

Process finished with exit code 0
```