Lab Assignment

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Reg No: FA20-BSE-025

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```python
list1 = [7,5,1]
list2 = [3,0,69]
list1.extend(list2)
list1.sort()
print(list1)
```

```
[0, 1, 3, 5, 7, 69]
```

```python
list1 = [7,5,1]
list2 = [3,0,69]
list1.extend(list2)
list1.sort()
print(min(list1))
print(max(list1))
```

```
0
69
```

```python
from math import *
h = 0.001
x = [i*0.001 for i in range(-int(pi/0.001), int(pi/0.001)+1)]

for i in range(len(x)):
    num = sin(x[i]+h) - sin(x[i])
    deriv = num / h
    true_deriv = cos(x[i])
    print(f"x = {x[i]:.3f}: Approx. Deriv. = {deriv:.3f}, True Deriv. = {true_deriv:.3f}")
```

```
x = 3.117: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.118: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.119: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.120: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.121: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.122: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.123: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.124: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.125: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.126: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.127: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.128: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.129: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.130: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.131: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.132: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.133: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.134: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.135: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.136: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.137: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.138: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.139: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.140: Approx. Deriv. = -1.000, True Deriv. = -1.000
x = 3.141: Approx. Deriv. = -1.000, True Deriv. = -1.000
```