



Assignment

Submitted To: Mam Yasmeen Jana

Submitted By: Ayesha Habib

Subject: AI

Date: 4/4/2023

Activity 1

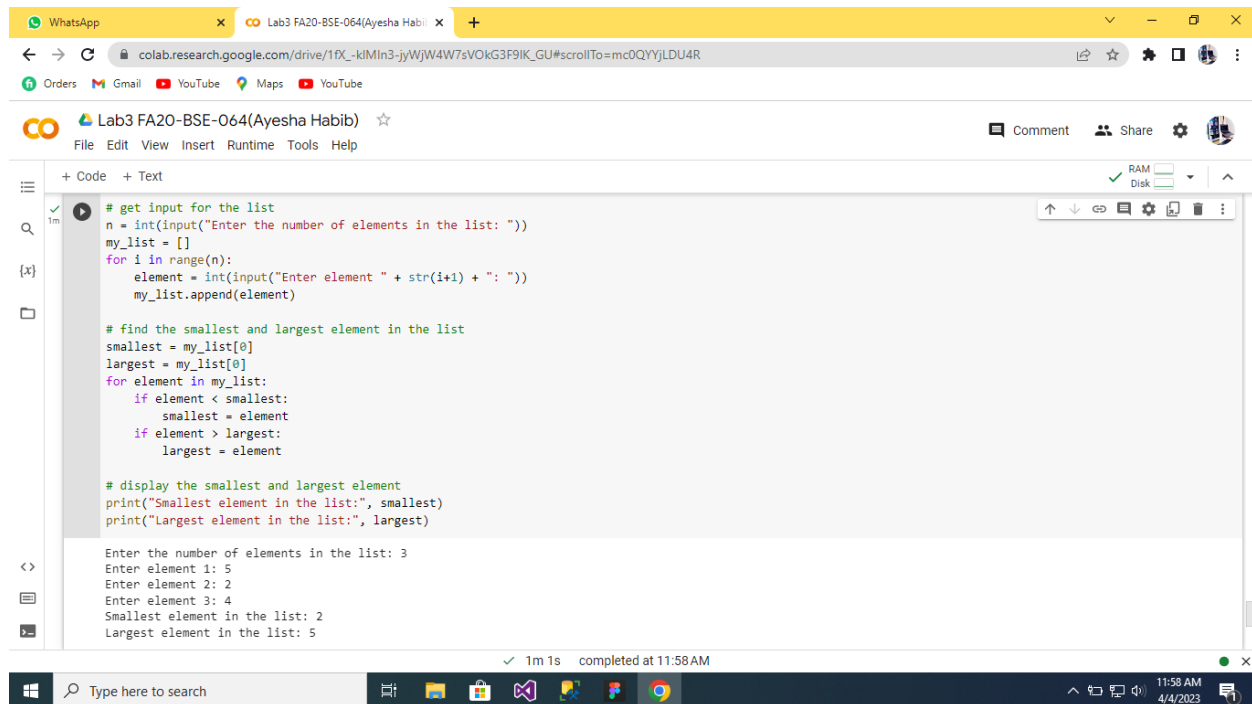
A screenshot of a Google Colab notebook interface. The browser tabs at the top show 'WhatsApp' and 'Lab3 FA20-BSE-064(Ayesha Habib)'. The address bar shows a Google Drive link. The notebook title is 'Lab3 FA20-BSE-064(Ayesha Habib)'. The code editor shows Python code for merging two sorted lists. The output area shows the execution results, including user input and the final sorted list.

```
a=[]
c=[]
n1=int(input("Enter number of elements:"))
for i in range(1,n1+1):
    b=int(input("Enter element:"))
    a.append(b)
n2=int(input("Enter number of elements:"))
for i in range(1,n2+1):
    d=int(input("Enter element:"))
    c.append(d)
new=a+c
new.sort()
print("Sorted list is:",new)
```

Enter number of elements:5
Enter element:2
Enter element:1
Enter element:5
Enter element:3
Enter element:5
Enter number of elements:1
Enter element:5
Sorted list is: [1, 2, 3, 5, 5, 5]

Executing (4s) <cell line: 2> > raw_input() > _input_request() > select()

Activity 2



The screenshot shows a Google Colab notebook interface. The browser tabs at the top include WhatsApp and Lab3 FA20-BSE-064(Ayesha Habib). The address bar shows a Google Drive link. The notebook title is "Lab3 FA20-BSE-064(Ayesha Habib)". The code editor contains a Python script that prompts the user for the number of elements in a list, then for each element, and finally prints the smallest and largest elements. The output shows the user entering 3 elements with values 5, 2, and 4, resulting in the smallest element being 2 and the largest being 5. The status bar at the bottom indicates the code was completed in 1m 1s at 11:58 AM on 4/4/2023.

```
# get input for the list
n = int(input("Enter the number of elements in the list: "))
my_list = []
for i in range(n):
    element = int(input("Enter element " + str(i+1) + ": "))
    my_list.append(element)

# find the smallest and largest element in the list
smallest = my_list[0]
largest = my_list[0]
for element in my_list:
    if element < smallest:
        smallest = element
    if element > largest:
        largest = element

# display the smallest and largest element
print("Smallest element in the list:", smallest)
print("Largest element in the list:", largest)
```

Enter the number of elements in the list: 3
Enter element 1: 5
Enter element 2: 2
Enter element 3: 4
Smallest element in the list: 2
Largest element in the list: 5

✓ 1m 1s completed at 11:58 AM

Activity 3

WhatsApp

Lab3 FA20-BSE-064(Ayesha Habib)

colab.research.google.com/drive/1fX_kIMln3-jyWjW4W7sVOKG3F9IK_GU#scrollTo=_h0ugWpkEEvL

Orders Gmail YouTube Maps YouTube

Lab3 FA20-BSE-064(Ayesha Habib)

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[3] from math import *

Define x from -pi to pi with an increment of 0.001

x = [i*0.001 for i in range(-int(pi/0.001), int(pi/0.001)+1)]

Set h = 0.001

h = 0.001

Loop through x and compute the approximation of the derivative and cos(x)

for i in range(len(x)):

approx_deriv = (cos(x[i] + h) - cos(x[i]))/h

true_deriv = -sin(x[i])

print(f"Approximation: {approx_deriv}, True value: {true_deriv}")

Approximation: -0.0570616400062951, True value: -0.05756082055888141

Approximation: -0.0560632410262496, True value: -0.056562449943375205

Approximation: -0.055064785983161, True value: -0.055564022765423764

Approximation: -0.05406627587511981, True value: -0.05456554002345375

Approximation: -0.05306771170099367, True value: -0.0535670027159487

Approximation: -0.05206909445909513, True value: -0.052568411841445395

Approximation: -0.05107042514806981, True value: -0.05156976839853464

Approximation: -0.05007170476667433, True value: -0.050571073385859325

Approximation: -0.049072934313443284, True value: -0.04957232780211529

Approximation: -0.04807411478746637, True value: -0.048573532646047586

Approximation: -0.04707524718727818, True value: -0.04757468891645128

Approximation: -0.046076332511746365, True value: -0.04657579761216958

Approximation: -0.04507737176007165, True value: -0.0455768597320946

2s completed at 11:59 AM

Type here to search

11:59 AM 4/4/2023