

## Lab Four

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**Course:** SDEV 300

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Test Case	Test Description	Procedure	Input	Expected Output	Actual Output	Pass ?
<b>1. Yes or No menu</b>						
1a-a	Test if the program can validate user's input	+ Run the program. + Type 'x'	X	Input must be 'Y' or 'N' Do you want to play the Matrix Game?	Input must be 'Y' or 'N' Do you want to play the Matrix Game?	Yes
1a-b	Test if the program proceeds when user opted 'y'	+ Run the program. + Type 'y'	y	Enter your phone number (XXX-XXX-XXXX):	Enter your phone number (XXX-XXX-XXXX):	Yes
1b-a	Test if the program exits and display a message when user opted 'n'	+ Run the program. + Type 'n'	n	***** Thanks for playing Python Numpy *****	***** Thanks for playing Python Numpy *****	Yes
<b>2. Phone number</b>						
2a-a	Test if the program validates user's phone number	+ Run the program. + Type 'y' +12-12-124	12-12-124	Your phone number is not in correct format. Please reenter:	Your phone number is not in correct format. Please reenter:	Yes
2a-b	Test if the program validates user's phone number (10 digits including alphabets)	+ Run the program. + Type 'y' +123-123-124a	123-123-124a	Your phone number is not in correct format. Please reenter:	Your phone number is not in correct format. Please reenter:	Yes

2b	Test if the program validates user's phone number	+ Run the program. + Type 'y' +123-123-1245	123-123-1245	Enter your zip code+4 (XXXXX-XXXX):	Enter your zip code+4 (XXXXX-XXXX):	Yes
<b>3. Zip-Code</b>						
3a	Test if the program validates user's zip-code	+ Run the program. + Type 'y' + 123-123-1245 + 12-12a	12-12a	Your zip-code is not in correct format. Please reenter:	Your zip-code is not in correct format. Please reenter:	Yes
3b	Test if the program validates user's zip-code	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234	12345-1234	Enter your first 3x3 matrix:	Enter your first 3x3 matrix:	Yes
<b>4. Matrix input</b>						
4a-a	Test if the program validated users input(numeric only)	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 a + hit Enter	1 2 a	Invalid input. Please enter three float numbers separated by a space.	Invalid input. Please enter three float numbers separated by a space.	Yes
4a-b	Test if the program validates the number of elements in each row equals to three	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 4 + hit Enter	1 2 3 4	Invalid input. Please enter exactly three float numbers separated by a space.	Invalid input. Please enter exactly three float numbers separated by a space.	Yes
4a-c	Test if the program validates and take correct matrix format	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter	1 2 3 1 2 3 1 2 3	Will display the matrix	Matrix displayed	Yes

		+ 1 2 3 + hit Enter + 1 2 3 + hit Enter				
4b	Test if the program displays the matrix entered by the user	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter	1 2 3 1 2 3 1 2 3	Will display the matrix	Will display the matrix	Yes
<b>5. Matrix Operation list and Operations</b>						
5a-a	Test if the program displays matrix operation lists to the user	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter	NA	Select a Matrix Operation from the list below: a. Addition b. Subtraction c. Matrix Multiplication d. Element by element multiplication	Select a Matrix Operation from the list below: a. Addition b. Subtraction c. Matrix Multiplication d. Element by element multiplication	Yes
5a-b	Test if the program validates user's choice (a-d) from the matrix operations list	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3	z	Invalid Input!!! Select a Matrix Operation from the list below: a. Addition b. Subtraction c. Matrix Multiplication d. Element by element multiplication	Invalid Input!!! Select a Matrix Operation from the list below: a. Addition b. Subtraction c. Matrix Multiplication d. Element by element multiplication	Yes

		+ hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + z				
5a-c	Test if the program validates user's choice (a-d) from the matrix operations list	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + 12	12			Yes
5a-d	Test if the program validates user's choice (a-d) from the matrix operations list	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3	a	Program will proceed to the next operation	Program proceeded to the next operation.	Yes

		+ hit Enter + a				
5b-a-a	Test if the program adds tow matrices	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + a	a	You selected Addition. The results are: 5.0 7.0 9.0 8.0 10.0 12.0 2.0 4.0 6.0	You selected Addition. The results are: 5.0 7.0 9.0 8.0 10.0 12.0 2.0 4.0 6.0	Yes
5b-a-b	Test if the program computes the transpose of the sum of two matrices	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + a	a	The Transpose is: 5.0 8.0 2.0 7.0 10.0 4.0 9.0 12.0 6.0	The Transpose is: 5.0 8.0 2.0 7.0 10.0 4.0 9.0 12.0 6.0	Yes
5b-a-c	Test if the program computes the row and column mean values	+ Run the program. + Type 'y' + 123-123-1245	a	The row and column mean values of the results are: Row: 7.0 ,10.0 ,4.0 , Column: 5.0 ,7.0 ,9.0 ,	The row and column mean values of the results are: Row: 7.0 ,10.0 ,4.0 , Column: 5.0 ,7.0 ,9.0 ,	Yes

	from the result of the sum of two matrices.	+ 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + a				
5b-b-a	Test if the program subtracts tow matrices	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + b	b	You selected Subtraction. The results are: -3.0 -3.0 -3.0 -6.0 -6.0 -6.0 0.0 0.0 0.0	You selected Subtraction. The results are: -3.0 -3.0 -3.0 -6.0 -6.0 -6.0 0.0 0.0 0.0	Yes
5b-b-b	Test if the program computes the transpose from the output of the difference of the two matrices	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter	b	The Transpose is: -3.0 -6.0 0.0 -3.0 -6.0 0.0 -3.0 -6.0 0.0	The Transpose is: -3.0 -6.0 0.0 -3.0 -6.0 0.0 -3.0 -6.0 0.0	Yes

		+ 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + b				
5b-b-c	Test if the program computes the row and column mean values from the result of the difference of two matrices.	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + b	b	The row and column mean values of the results are: Row: -3.0 ,-6.0 ,0.0 , Column: -3.0 ,-3.0 ,-3.0 ,	The row and column mean values of the results are: Row: -3.0 ,-6.0 ,0.0 , Column: -3.0 ,-3.0 ,-3.0 ,	Yes
5b-c-a	Test if the program multiplies two matrices	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + c	c	You selected Multiplication. The results are: 21.0 27.0 33.0 21.0 27.0 33.0 21.0 27.0 33.0	You selected Multiplication. The results are: 21.0 27.0 33.0 21.0 27.0 33.0 21.0 27.0 33.0	Yes

5b-c-b	Test if the program computes the transpose from the output of the product of the two matrices	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + c	c	The Transpose is: 21.0 21.0 21.0 27.0 27.0 27.0 33.0 33.0 33.0	The Transpose is: 21.0 21.0 21.0 27.0 27.0 27.0 33.0 33.0 33.0	Yes
5b-c-c	Test if the program computes the row and column mean values from the result of the product of two matrices.	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + c	c	The row and column mean values of the results are: Row: 27.0 ,27.0 ,27.0 , Column: 21.0 ,27.0 ,33.0 ,	The row and column mean values of the results are: Row: 27.0 ,27.0 ,27.0 , Column: 21.0 ,27.0 ,33.0 ,	Yes
5b-d-a	Test if the program multiplies two matrices (element by element)	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3	d	You selected Element by element Multiplication. The results are: 21.0 27.0 33.0 21.0 27.0 33.0 21.0 27.0 33.0	You selected Element by element Multiplication. The results are: 21.0 27.0 33.0 21.0 27.0 33.0 21.0 27.0 33.0	Yes



		+ hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + d				
5b-d-b	Test if the program computes the transpose from the output of the product of the two matrices (element by element)	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + d	d	The Transpose is: 21.0 21.0 21.0 27.0 27.0 27.0 33.0 33.0 33.0	The Transpose is: 21.0 21.0 21.0 27.0 27.0 27.0 33.0 33.0 33.0	Yes
5b-d-c	Test if the program computes the row and column mean values from the result of the product of two matrices (element by element).	+ Run the program. + Type 'y' + 123-123-1245 + 12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9	d	The row and column mean values of the results are: Row: 27.0 ,27.0 ,27.0 , Column: 21.0 ,27.0 ,33.0 ,	The row and column mean values of the results are: Row: 27.0 ,27.0 ,27.0 , Column: 21.0 ,27.0 ,33.0 ,	Yes

		+ hit Enter + 1 2 3 + hit Enter + d				
<b>6. Exit Menu</b>						
6	Test if the program prompts user with the option to continue or exit the program after every matrix operation.	+ Run the program. + Type 'y' + 123-12345-1234 + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 1 2 3 + hit Enter + 4 5 6 + hit Enter + 7 8 9 + hit Enter + 1 2 3 + hit Enter + d	d	' ' ' ***** Welcome to the Python Matrix Application***** ** Do you want to play the Matrix Game? Enter Y for Yes or N for No:	' ' ' ***** Welcome to the Python Matrix Application***** ** Do you want to play the Matrix Game? Enter Y for Yes or N for No:	Yes

1a-a

```
***** Welcome to the Python Matrix Application*****
Do you want to play the Matrix Game?
Enter Y for Yes or N for No:
x
Input must be 'Y' or 'N'
Do you want to play the Matrix Game?
```

1a-b

```
Input must be 'Y' or 'N'
Do you want to play the Matrix Game?y
Enter your phone number (XXX-XXX-XXXX):
```

1b-a

```
***** Welcome to the Python Matrix Application*****
Do you want to play the Matrix Game?
Enter Y for Yes or N for No:
n
***** Thanks for playing Python Numpy *****
Process finished with exit code 0
```

2a-a

```
Enter your phone number (XXX-XXX-XXXX):
12-12-124
Your phone number is not in correct format. Please reenter:
```

2a-b

```
Your phone number is not in correct format. Please reenter:
123-123-124a
Your phone number is not in correct format. Please reenter:
```

3a

```
Enter your zip code+4 (XXXXX-XXXX):
12-12a
Your zip-code is not in correct format. Please reenter:
```

3b

```
Enter your zip code+4 (XXXXX-XXXX):
12345-1234
Enter your first 3x3 matrix:
```

4a-a

```
Enter your first 3x3 matrix:
1 2 a
Invalid input. Please enter three float numbers separated by a space.
```

4a-b

```
Invalid input. Please enter three float numbers separated by a space.
1 2 3 4
Invalid input. Please enter exactly three float numbers separated by a space.
```

4a-c

```
Invalid input. Please enter exactly three float numbers separated by a space.
1 2 3
1 2 3
1 2 3
Your first 3x3 matrix is:
```

4b

```
Enter your first 3x3 matrix:
1 2 3
1 2 3
1 2 3
Your first 3x3 matrix is:

1.0 2.0 3.0
1.0 2.0 3.0
1.0 2.0 3.0
Enter your second 3x3 matrix:
```

5a-a

```
Select a Matrix Operation from the list below:
a. Addition
b. Subtraction
c. Matrix Multiplication
d. Element by element multiplication
```

5a-b

```
Select a Matrix Operation from the list below:
a. Addition
b. Subtraction
c. Matrix Multiplication
d. Element by element multiplication
z
Invalid Input!!!
Select a Matrix Operation from the list below:
a. Addition
b. Subtraction
c. Matrix Multiplication
d. Element by element multiplication
```

5a-c

```
12
Invalid Input!!!
Select a Matrix Operation from the list below:
a. Addition
b. Subtraction
c. Matrix Multiplication
d. Element by element multiplication
```

5a-d

```
Select a Matrix Operation from the list below:
a. Addition
b. Subtraction
c. Matrix Multiplication
d. Element by element multiplication
a
You selected Addition. The results are:
5.0 7.0 9.0
8.0 10.0 12.0
2.0 4.0 6.0
```

5b-a-a

```
You selected Addition. The results are:
5.0 7.0 9.0
8.0 10.0 12.0
2.0 4.0 6.0
```

5b-a-b

```
The Transpose is:
5.0 8.0 2.0
7.0 10.0 4.0
9.0 12.0 6.0
```

5b-a-c

```
The row and column mean values of the results are:
Row: 7.0 ,10.0 ,4.0 ,
Column: 5.0 ,7.0 ,9.0 ,
```

5b-b-a

```
You selected Subtraction. The results are:
-3.0 -3.0 -3.0
-6.0 -6.0 -6.0
0.0 0.0 0.0
```

5b-b-b

```
The Transpose is:
-3.0 -6.0 0.0
-3.0 -6.0 0.0
-3.0 -6.0 0.0
```

5b-b-c

```
The row and column mean values of the results are:
Row:  -3.0 , -6.0 , 0.0 ,
Column:  -3.0 , -3.0 , -3.0 ,
```

5b-c-a, b, c

```
You selected Multiplication. The results are:
21.0 27.0 33.0
21.0 27.0 33.0
21.0 27.0 33.0

The Transpose is:
21.0 21.0 21.0
27.0 27.0 27.0
33.0 33.0 33.0
The row and column mean values of the results are:
Row:  27.0 , 27.0 , 27.0 ,
Column:  21.0 , 27.0 , 33.0 ,
```

5b-d-a, b, c

```
d
You selected Element by element Multiplication. The results are:
21.0 27.0 33.0
21.0 27.0 33.0
21.0 27.0 33.0

The Transpose is:
21.0 21.0 21.0
27.0 27.0 27.0
33.0 33.0 33.0
The row and column mean values of the results are:
Row:  27.0 , 27.0 , 27.0 ,
Column:  21.0 , 27.0 , 33.0 ,
```

Pylint Analysis:

1<sup>st</sup> Try

```

C:\Users\zack1\PycharmProjects\pythonProject>pylint lab_four.py
***** Module lab_four
lab_four.py:33:0: C0301: Line too long (103/100) (line-too-long)
lab_four.py:1:0: C0114: Missing module docstring (missing-module-docstring)
lab_four.py:1:0: E0401: Unable to import 'numpy' (import-error)
lab_four.py:132:12: C0103: Variable name "c" doesn't conform to snake_case naming style (invalid-name)
lab_four.py:258:8: C0103: Variable name "m" doesn't conform to snake_case naming style (invalid-name)
lab_four.py:2:0: C0411: standard import "import re" should be placed before "import numpy as np" (wrong-import-order)

-----
Your code has been rated at 9.31/10

```

2<sup>nd</sup> Try

```

C:\Users\zack1\PycharmProjects\pythonProject>pylint lab_four.py
***** Module lab_four
lab_four.py:15:0: E0401: Unable to import 'numpy' (import-error)

-----
Your code has been rated at 9.65/10 (previous run: 9.65/10, +0.00)

```