ASSIGNMENT 1 ANSWERS

DATE: 14-FEB-2024

1. Write a Python program to calculate the area of a rectangle given its length and width.

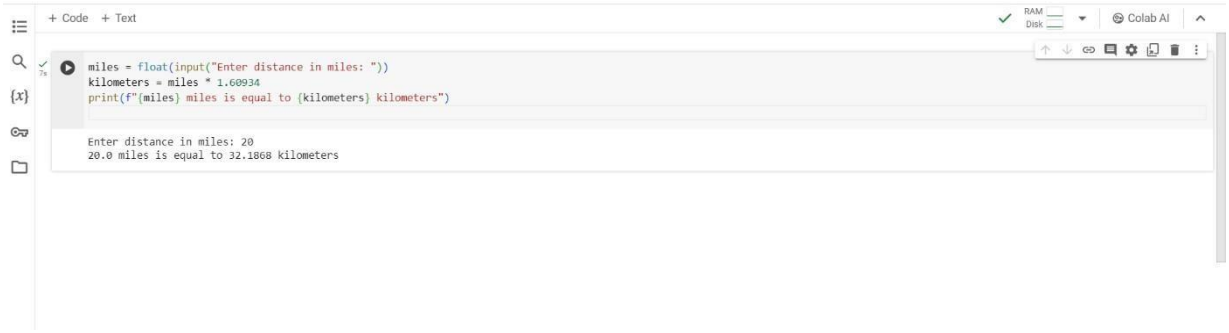
A)

```
length = float(input("Enter the length of the rectangle: "))
width = float(input("Enter the width of the rectangle: "))

area = length * width
print(f"The area of the rectangle is: {area}")
```

```
Enter the length of the rectangle: 5
Enter the width of the rectangle: 4
The area of the rectangle is: 20.0
```

2. Write a program to convert miles to kilometres

A)

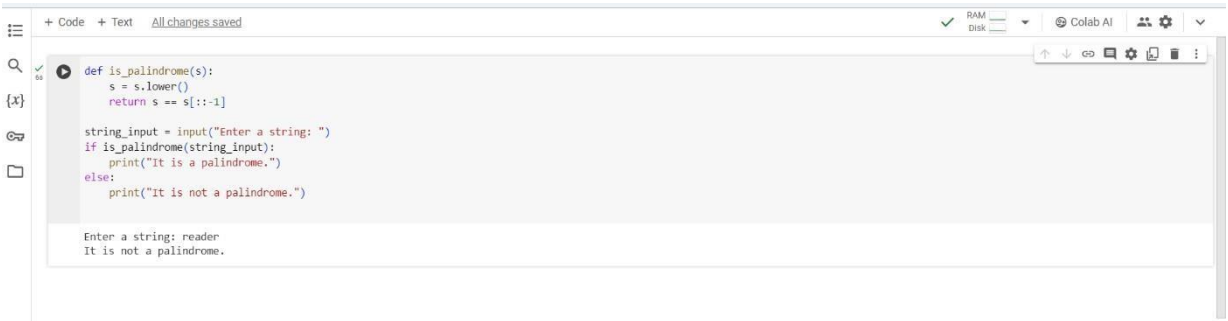


```
miles = float(input("Enter distance in miles: "))
kilometers = miles * 1.60934
print(f"{miles} miles is equal to {kilometers} kilometers")
```

```
Enter distance in miles: 20
20.0 miles is equal to 32.1868 kilometers
```

3. Write a function to check if a given string is a palindrome.

A)



```
def is_palindrome(s):
    s = s.lower()
    return s == s[::-1]

string_input = input("Enter a string: ")
if is_palindrome(string_input):
    print("It is a palindrome.")
else:
    print("It is not a palindrome.")
```

```
Enter a string: reader
It is not a palindrome.
```

4. Write a Python program to find the second largest element in a list.

A)

5) Explain what indentation means in Python.

A)

In Python, indentation is a way of indicating the grouping of statements within a block of code. It is used to define the structure and scope of the code. Instead of using curly braces or keywords like "begin" and "end" as in some other programming languages, Python uses indentation to show which statements belong to a particular block of code.

Indentation is typically done using spaces or tabs at the beginning of lines. Consistent indentation is crucial because it determines the code's structure. Statements with the same level of indentation are considered part of the same block.

For example:

if x > 0:

print("x is positive") print("This statement is also inside

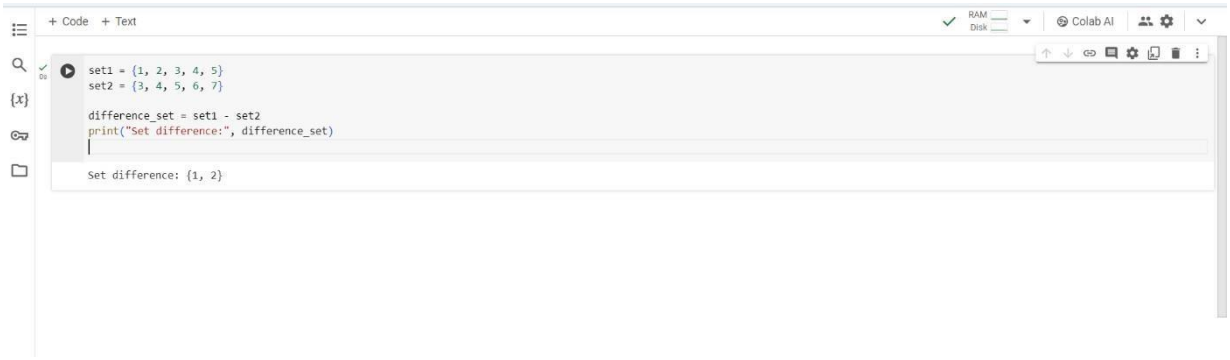
the if block") # Statements without indentation are outside

the block print("This statement is outside the if block")

In the above example, the two **print** statements are inside the **if** block because they are indented under it. The last **print** statement is not indented and is outside the **if** block.

6) Write a program to perform set difference operation.

A)

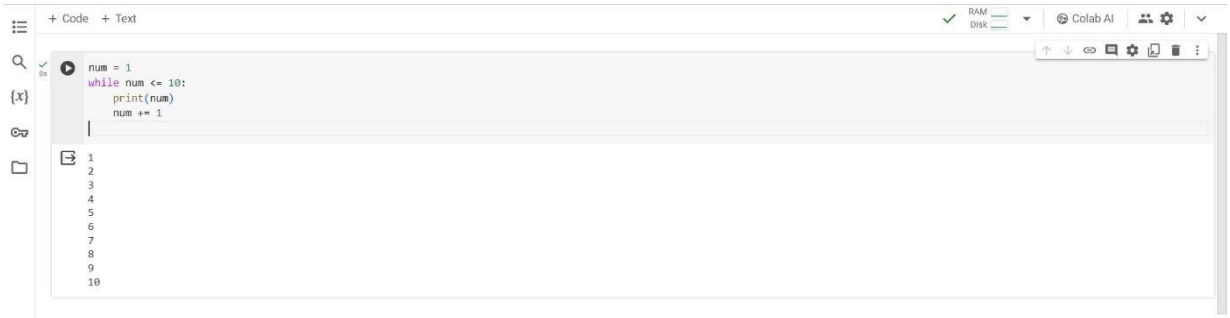


```
set1 = {1, 2, 3, 4, 5}
set2 = {3, 4, 5, 6, 7}

difference_set = set1 - set2
print("Set difference:", difference_set)
```

```
Set difference: {1, 2}
```

7. Write a Python program to print numbers from 1 to 10 using a while loop.

A)

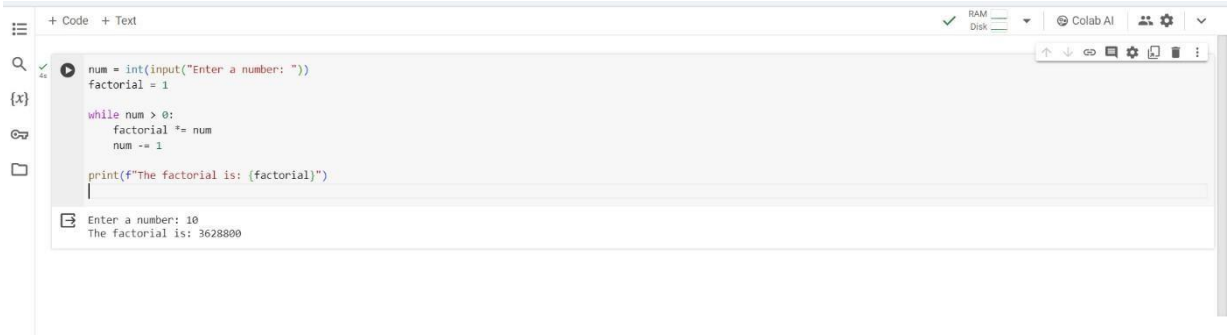


```
num = 1
while num <= 10:
    print(num)
    num += 1
```

```
1
2
3
4
5
6
7
8
9
10
```

8. Write a program to calculate the factorial of a number using a while loop.

A)

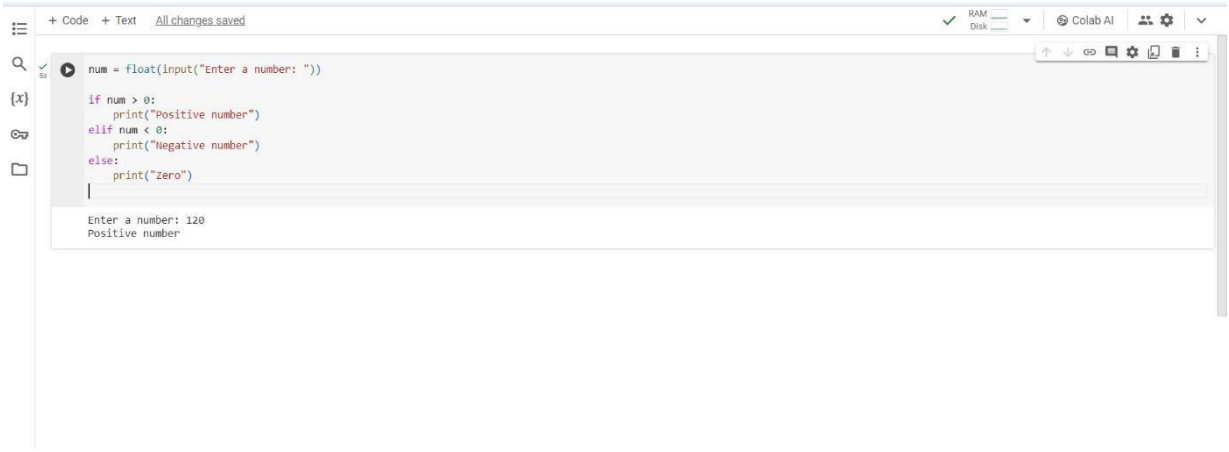


```
num = int(input("Enter a number: "))
factorial = 1

while num > 0:
    factorial *= num
    num -= 1

print(f"The factorial is: {factorial}")
```

```
Enter a number: 10
The factorial is: 3628800
```

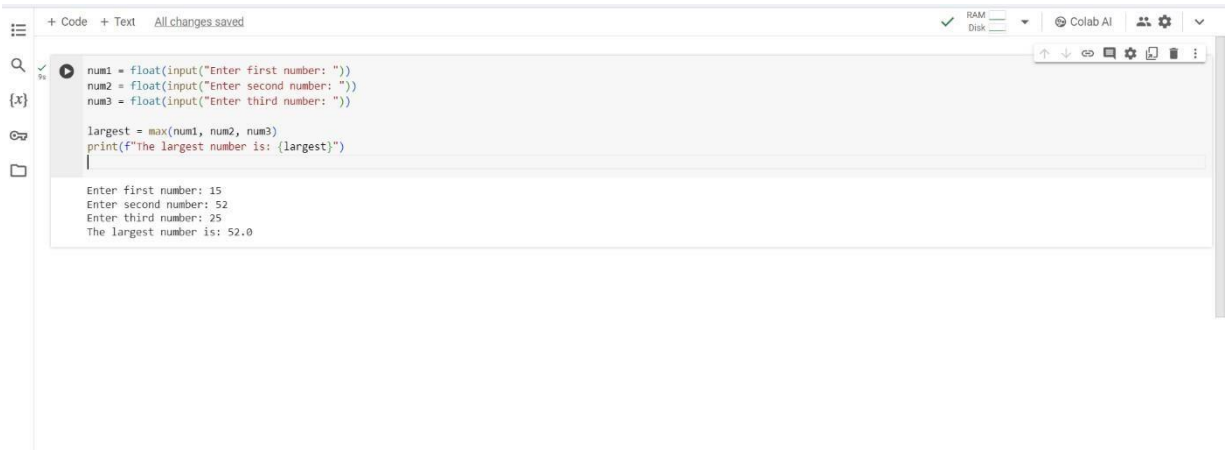
9. Write a Python program to check if a number is positive, negative, or zero using ifelifelse statement

A)



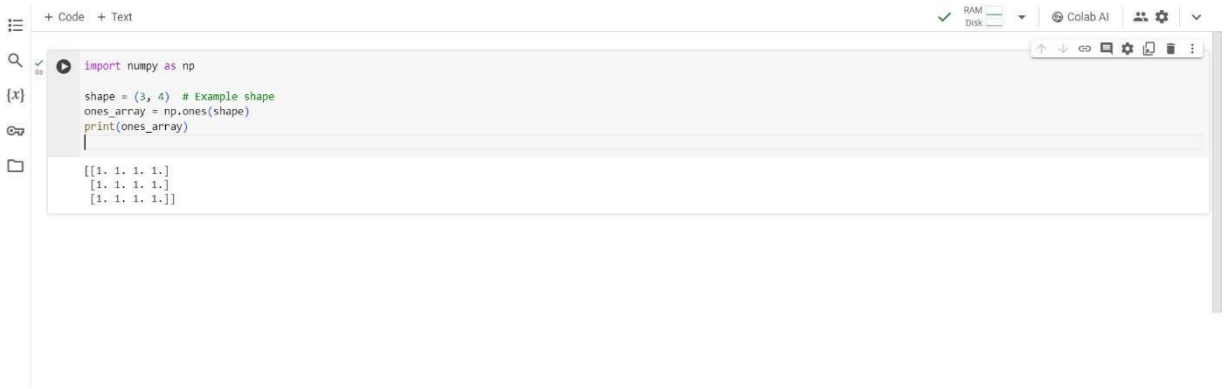
10. Write a program to determine the largest among three numbers using conditional statements.

A)



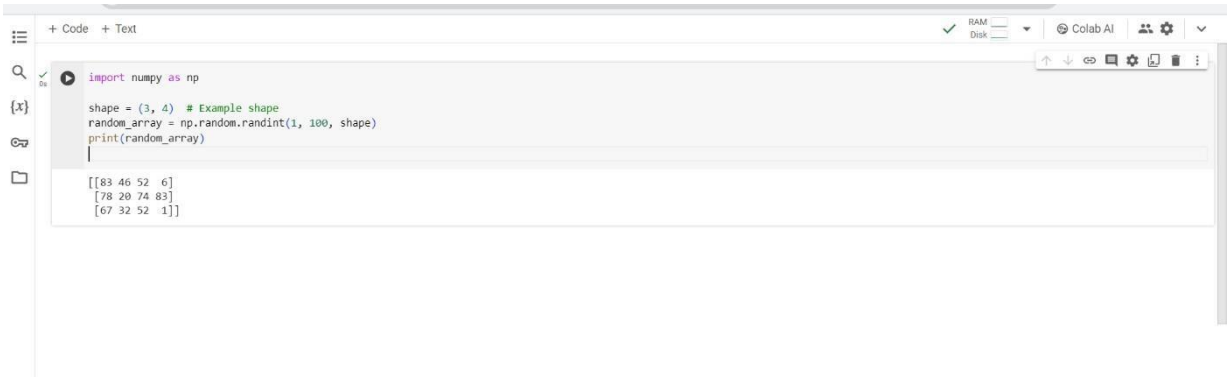
11. Write a Python program to create a numpy array filled with ones of given shape.

A)



12. Write a program to create a 2D numpy array initialized with random integers.

A)

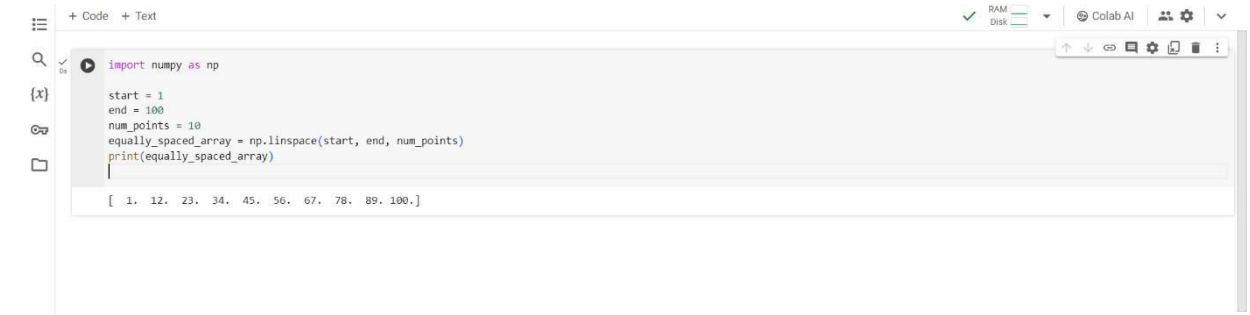


13. Write a Python program to generate an array of evenly spaced numbers over a specified range using linspace.

A)

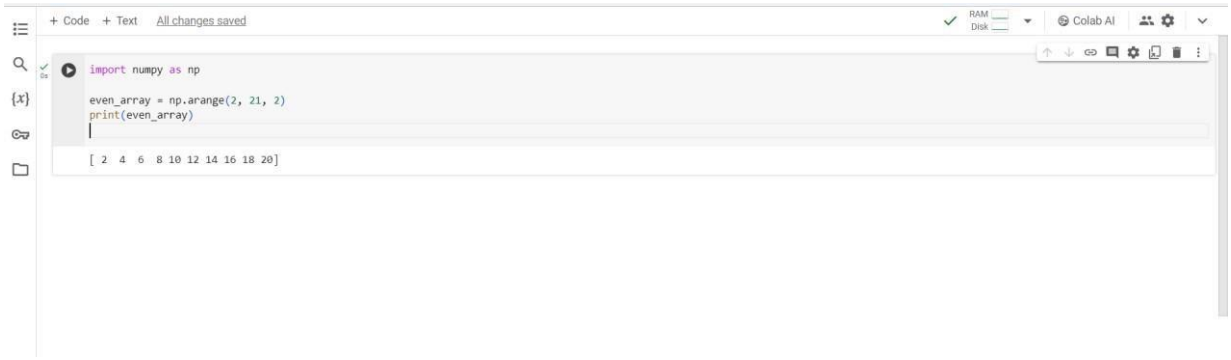
14. Write a program to generate an array of 10 equally spaced values between 1 and 100 using linspace.

A)



15. Write a Python program to create an array containing even numbers from 2 to 20 using arange.

A)



16. Write a program to create an array containing numbers from 1 to 10 with a step size of 0.5 using arange

A)