



TECHNIK NEST
INNOVATIVE MINDS, NESTING SUCCESS

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TN/IN02/PY/002

Task no: 1

Intro & Install

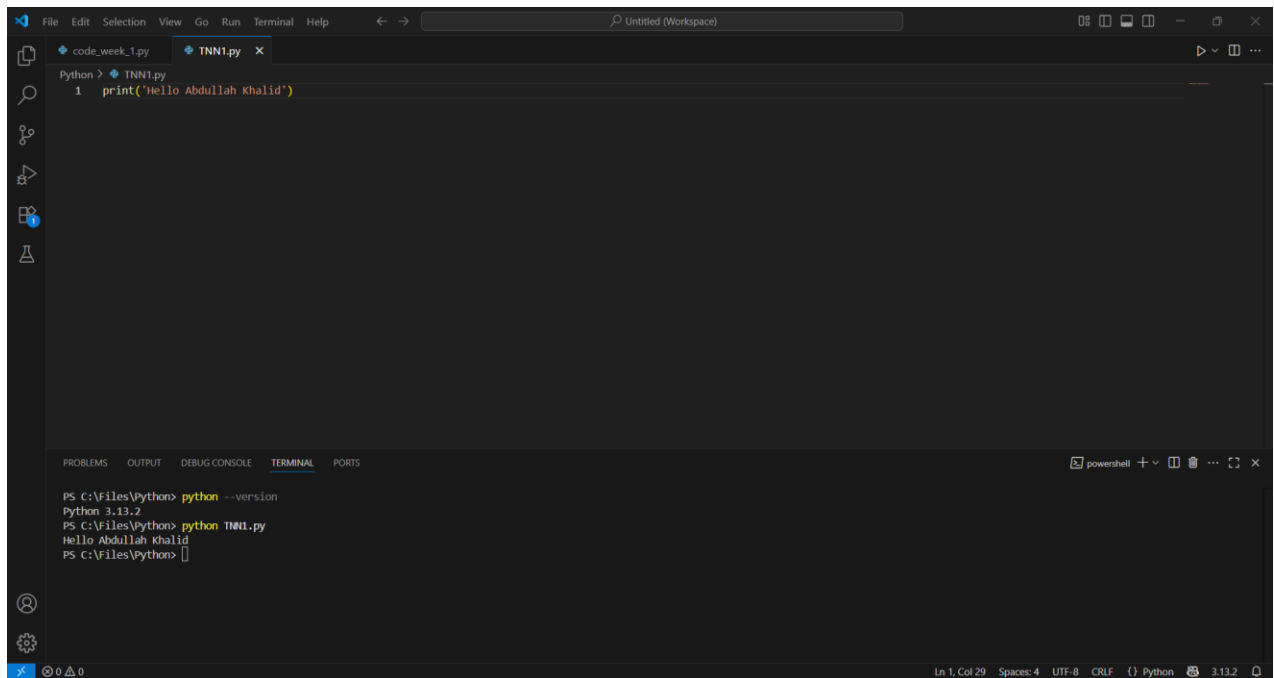
Question:

1. Install Python & print version.
2. Run hello script printing your name.

Code:

```
print('Hello Abdullah Khalid')
```

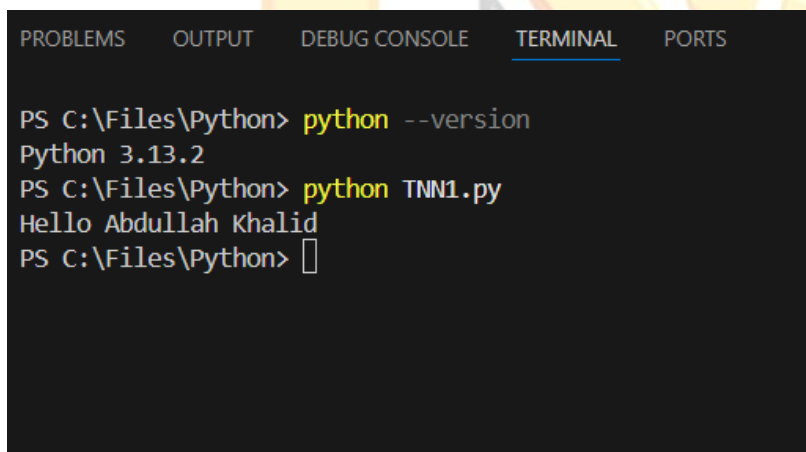
Screenshot:



```
Python > TNN1.py
1 print('Hello Abdullah Khalid')
```

```
PS C:\Files\Python> python --version
Python 3.13.2
PS C:\Files\Python> python TNN1.py
Hello Abdullah Khalid
PS C:\Files\Python>
```

Output:



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Files\Python> python --version
Python 3.13.2
PS C:\Files\Python> python TNN1.py
Hello Abdullah Khalid
PS C:\Files\Python>
```

Syntax and Indentation

Question:

1. Fix badly indented code.
2. Add comments explaining each step.

Code Before:

```
def print_even_numbers():
for i in range(5):
```

```
if i % 2 == 0:
    print(i)
    print("Checked number:", i)

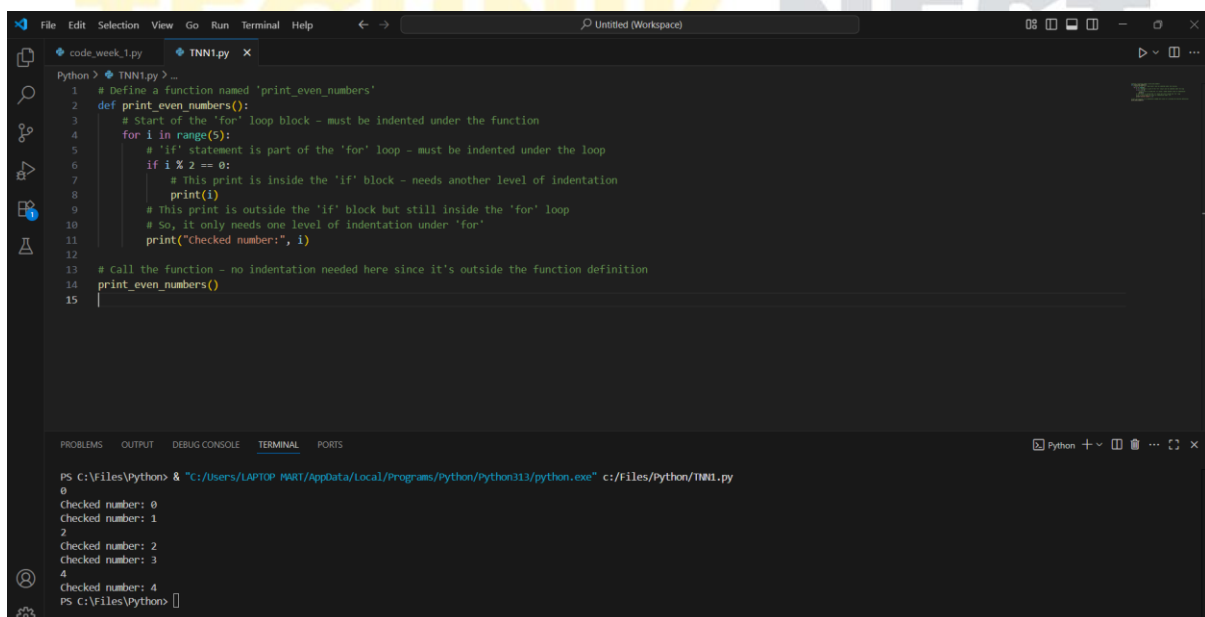
print_even_numbers()
```

Code After:

```
# Define a function named 'print_even_numbers'
def print_even_numbers():
    # Start of the 'for' loop block - must be indented under the function
    for i in range(5):
        # 'if' statement is part of the 'for' loop - must be indented under
        the loop
        if i % 2 == 0:
            # This print is inside the 'if' block - needs another level of
            indentation
            print(i)
        # This print is outside the 'if' block but still inside the 'for'
        loop
        # So, it only needs one level of indentation under 'for'
        print("Checked number:", i)

# Call the function - no indentation needed here since it's outside the
function definition
print_even_numbers()
```

Screenshot:



The screenshot shows a code editor with a Python file named 'TNN1.py'. The code defines a function 'print_even_numbers' that iterates over the range 0 to 4. For each even number (0, 2, 4), it prints the number and a message 'Checked number:'. The function is then called. The terminal output shows the execution results:

```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/python/python313/python.exe" c:/Files/python/TNN1.py
0
Checked number: 0
1
Checked number: 2
2
Checked number: 3
3
Checked number: 4
4
Checked number: 4
PS C:\Files\Python>
```

Output:

```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe"
0
Checked number: 0
Checked number: 1
2
Checked number: 2
Checked number: 3
4
Checked number: 4
PS C:\Files\Python> █
```

Variables and Types

Question:

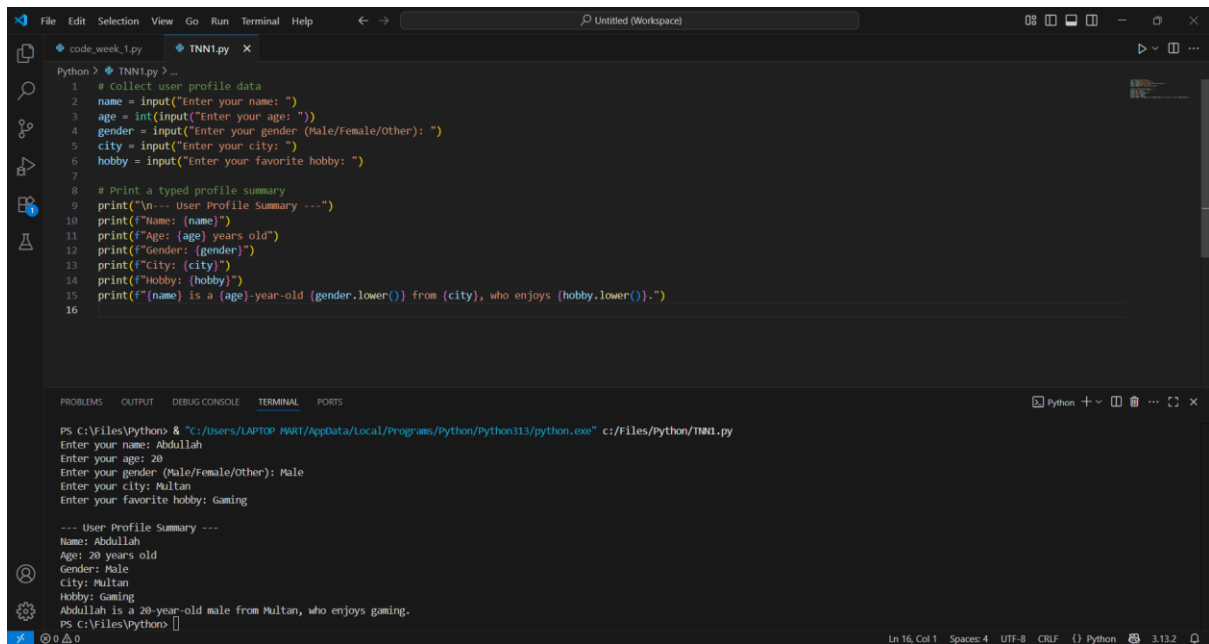
Collect user profile & print typed summary.

Code:

```
# Collect user profile data
name = input("Enter your name: ")
age = int(input("Enter your age: "))
gender = input("Enter your gender (Male/Female/Other): ")
city = input("Enter your city: ")
hobby = input("Enter your favorite hobby: ")

# Print a typed profile summary
print("\n--- User Profile Summary ---")
print(f"Name: {name}")
print(f"Age: {age} years old")
print(f"Gender: {gender}")
print(f"City: {city}")
print(f"Hobby: {hobby}")
print(f"{name} is a {age}-year-old {gender.lower()} from {city}, who enjoys {hobby.lower()}")
```

Screenshot:



The screenshot shows a code editor with a Python script named `TNN1.py`. The script collects user profile data (name, age, gender, city, hobby) and prints a summary. The terminal output shows the user inputting 'Abdullah', '20', 'Male', 'Multan', and 'Gaming', followed by a formatted summary of the profile.

```
1 # collect user profile data
2 name = input("Enter your name: ")
3 age = int(input("Enter your age: "))
4 gender = input("Enter your gender (Male/Female/Other): ")
5 city = input("Enter your city: ")
6 hobby = input("Enter your favorite hobby: ")
7
8 # Print a typed profile summary
9 print("\n--- User Profile Summary ---")
10 print(f"Name: {name}")
11 print(f"Age: {age} years old")
12 print(f"Gender: {gender}")
13 print(f"City: {city}")
14 print(f"Hobby: {hobby}")
15 print(f"{name} is a {age}-year-old {gender.lower()} from {city}, who enjoys {hobby.lower()}")
16
```

Terminal Output:

```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter your name: Abdullah
Enter your age: 20
Enter your gender (Male/Female/Other): Male
Enter your city: Multan
Enter your favorite hobby: Gaming

--- User Profile Summary ---
Name: Abdullah
Age: 20 years old
Gender: Male
City: Multan
Hobby: Gaming
Abdullah is a 20-year-old male from Multan, who enjoys gaming.
PS C:\Files\Python>
```

Output:

```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter your name: Abdullah
Enter your age: 20
Enter your gender (Male/Female/Other): Male
Enter your city: Multan
Enter your favorite hobby: Gaming

--- User Profile Summary ---
Name: Abdullah
Age: 20 years old
Gender: Male
City: Multan
Hobby: Gaming
Abdullah is a 20-year-old male from Multan, who enjoys gaming.
PS C:\Files\Python>
```

Question:

Swap two variables without temp var.

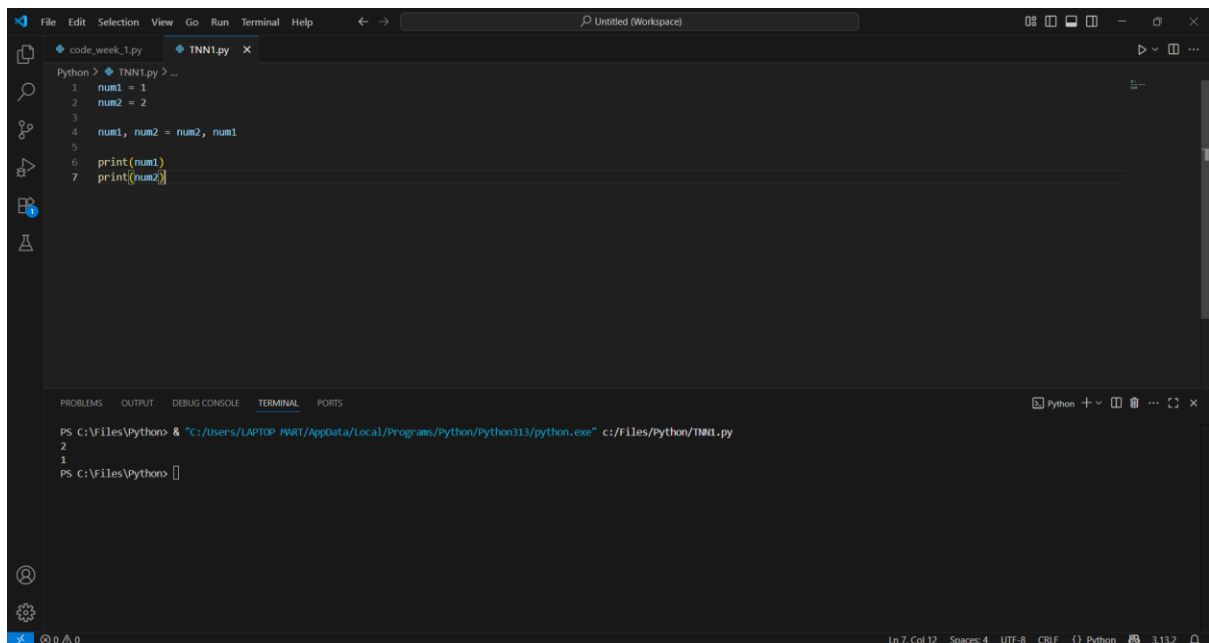
Code:

```
num1 = 1
num2 = 2

num1, num2 = num2, num1

print(num1)
print(num2)
```

Screenshot:



The screenshot shows a Python IDE with a file named `TNN1.py` open. The code in the file is as follows:

```
1 num1 = 1
2 num2 = 2
3
4 num1, num2 = num2, num1
5
6 print(num1)
7 print(num2)
```

The terminal at the bottom shows the command to run the script and its output:

```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
2
1
PS C:\Files\Python>
```

Output:

```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
2
1
PS C:\Files\Python>
```

Casting & I/O

Question:

Read three numbers; output avg.

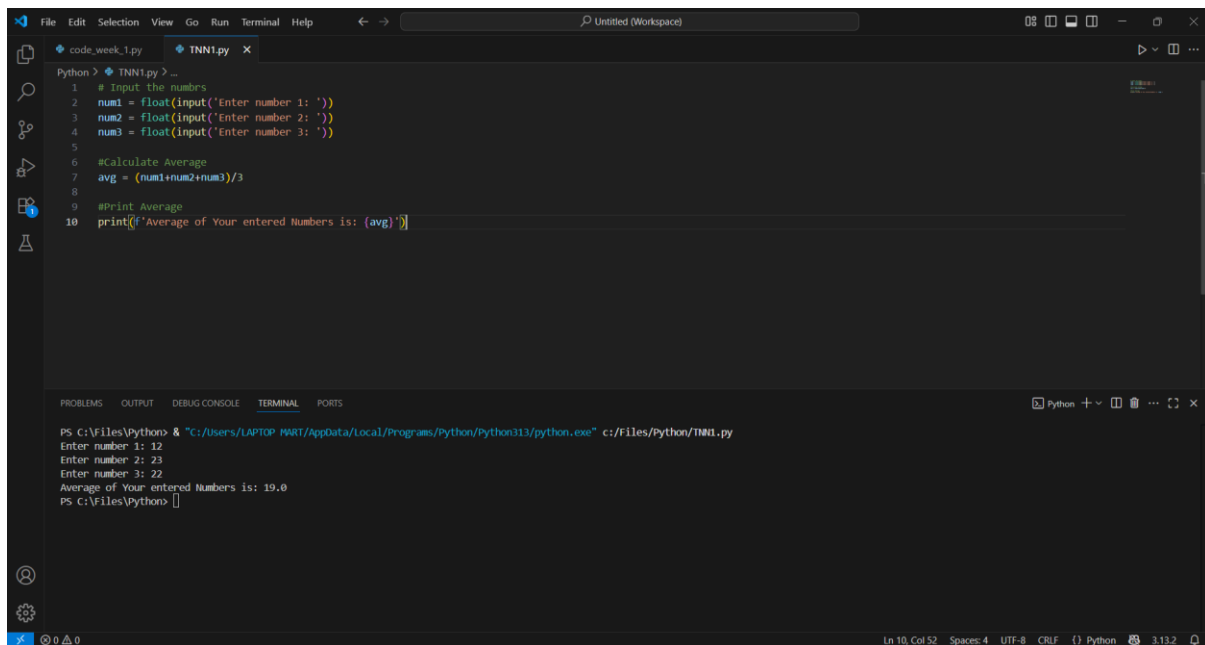
Code:

```
# Input the numbrs
num1 = float(input('Enter number 1: '))
num2 = float(input('Enter number 2: '))
num3 = float(input('Enter number 3: '))

#Calculate Average
avg = (num1+num2+num3)/3

#Print Average
print(f'Average of Your entered Numbers is: {avg}')
```

Screenshot:



The screenshot shows a Visual Studio Code editor with a Python file named `TNN1.py`. The code calculates the average of three numbers. The terminal at the bottom shows the execution of the script, where three numbers (12, 23, 22) are entered, and the average (19.0) is printed.

```
Python > TNN1.py ...
1 # Input the numbers
2 num1 = float(input('Enter number 1: '))
3 num2 = float(input('Enter number 2: '))
4 num3 = float(input('Enter number 3: '))
5
6 #Calculate Average
7 avg = (num1+num2+num3)/3
8
9 #Print Average
10 print(f'Average of Your entered Numbers is: {avg}')
```

```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter number 1: 12
Enter number 2: 23
Enter number 3: 22
Average of Your entered Numbers is: 19.0
PS C:\Files\Python>
```

Output:

```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter number 1: 12
Enter number 2: 23
Enter number 3: 22
Average of Your entered Numbers is: 19.0
PS C:\Files\Python>
```

Question:

Convert minutes to hours + minutes

Code:

```
min = int(input('Enter the Minutes: '))

hours = int(min/60)
min_2 = min%60

print(f'Your entered minutes {min} are equal to: {hours}:{min_2} Hours')
```

Screenshot:

```
code_week_1.py TNN1.py x
Python > TNN1.py > ...
1 min = int(input('Enter the Minutes: '))
2
3 hours = int(min/60)
4 min_2 = min%60
5
6 print(f'Your entered minutes {min} are equal to: {hours}:{min_2} Hours')
```

Output:

```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter the Minutes: 140
Your entered minutes 140 are equal to: 2:20 Hours
PS C:\Files\Python> |
```

Operators

Question:

BMI calc from user input

Code:

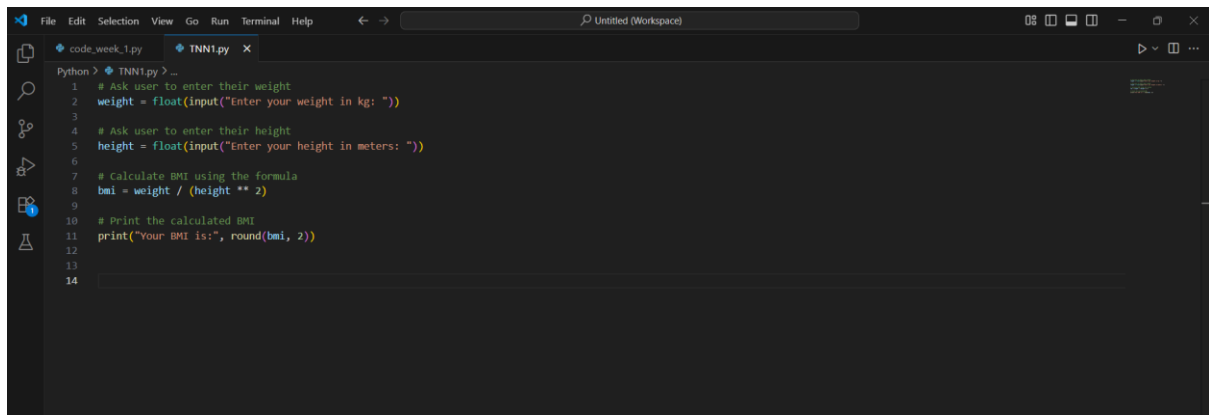
```
# Ask user to enter their weight
weight = float(input("Enter your weight in kg: "))

# Ask user to enter their height
height = float(input("Enter your height in meters: "))

# Calculate BMI using the formula
bmi = weight / (height ** 2)

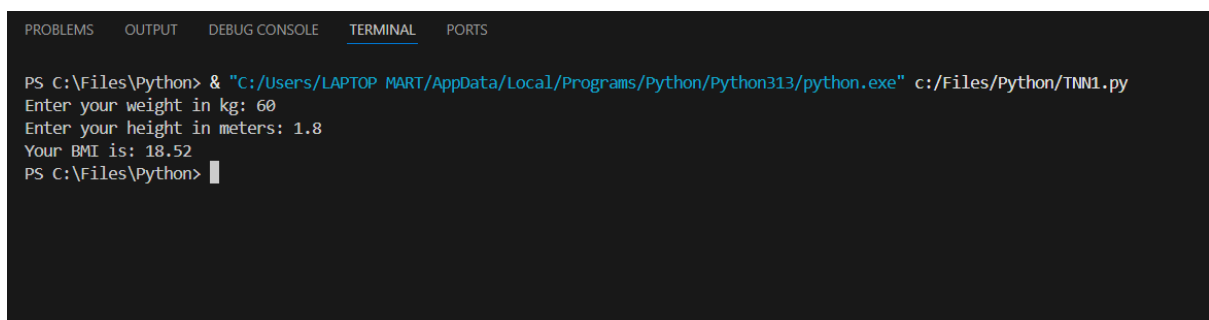
# Print the calculated BMI
print("Your BMI is:", round(bmi, 2))
```

Screenshot:

A screenshot of a code editor window with a dark theme. The editor shows a Python file named 'TNN1.py'. The code is a script to calculate BMI. It prompts the user for weight in kg and height in meters, then calculates the BMI using the formula $\text{BMI} = \text{weight} / (\text{height}^2)$ and prints the result rounded to two decimal places. The code is as follows:

```
1 # Ask user to enter their weight
2 weight = float(input("Enter your weight in kg: "))
3
4 # Ask user to enter their height
5 height = float(input("Enter your height in meters: "))
6
7 # calculate BMI using the formula
8 bmi = weight / (height ** 2)
9
10 # Print the calculated BMI
11 print("Your BMI is:", round(bmi, 2))
12
13
14
```

Output:

A screenshot of a terminal window showing the execution of the BMI program. The prompt is 'PS C:\Files\Python>'. The user runs the command '"C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py'. The program prompts for weight and height, and then displays the calculated BMI.

```
PS C:\Files\Python> "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter your weight in kg: 60
Enter your height in meters: 1.8
Your BMI is: 18.52
PS C:\Files\Python>
```

Question:

Simple interest calc.

Code:

```
# Ask user to enter principal amount
principal = float(input("Enter the principal amount: "))

# Ask user to enter annual interest rate
rate = float(input("Enter the annual interest rate (in %): "))

# Ask user to enter time period in years
time = float(input("Enter the time in years: "))

# Calculate simple interest using the formula
simple_interest = (principal * rate * time) / 100

# Print the calculated simple interest
print("The simple interest is:", simple_interest)
```

Screenshot:

The image shows a Visual Studio Code editor window with a Python file named `TNN1.py`. The script prompts the user for the principal amount, annual interest rate, and time period in years, then calculates and prints the simple interest.

```

Python> TNN1.py
1 # Ask user to enter principal amount
2 principal = float(input("Enter the principal amount: "))
3
4 # Ask user to enter annual interest rate
5 rate = float(input("Enter the annual interest rate (in %): "))
6
7 # Ask user to enter time period in years
8 time = float(input("Enter the time in years: "))
9
10 # Calculate simple interest using the formula
11 simple_interest = (principal * rate * time) / 100
12
13 # Print the calculated simple interest
14 print("The simple interest is:", simple_interest)
15
16

```

The terminal output shows the execution of the script with the following inputs and results:

```

PS C:\Files\Python> & "C:\Users\LAPTOP_MART\AppData\Local\Programs\Python\Python313\python.exe" c:\Files\Python\TNN1.py
Enter the principal amount: 12
Enter the annual interest rate (in %): 23
Enter the time in years: 2
The simple interest is: 5.52
PS C:\Files\Python>

```

Output:

```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter the principal amount: 12
Enter the annual interest rate (in %): 23
Enter the time in years: 2
The simple interest is: 5.52
PS C:\Files\Python> █
```

Strings

Question:

Username builder from full name.

Code:

```
import random

full_name = input("Enter your full name: ")

name_parts = full_name.split()
rand_no = random.randint(10,99)

# Check if at least two parts exist
```

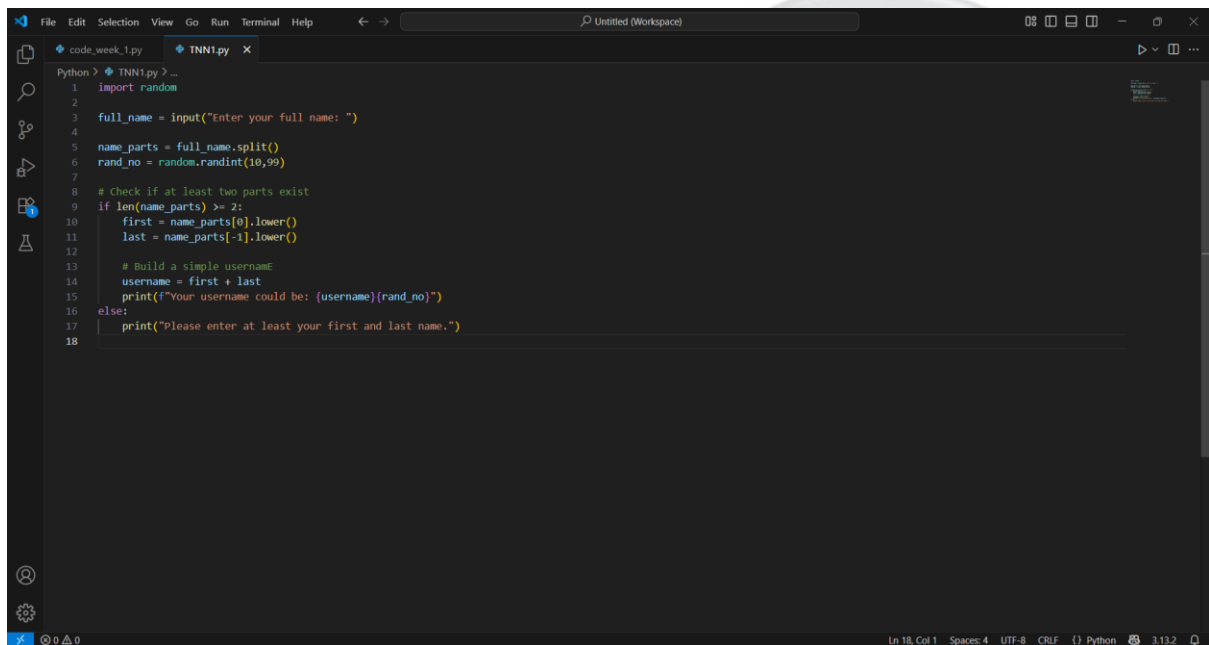
```

if len(name_parts) >= 2:
    first = name_parts[0].lower()
    last = name_parts[-1].lower()

    # Build a simple username
    username = first + last
    print(f"Your username could be: {username}{rand_no}")
else:
    print("Please enter at least your first and last name.")

```

Screenshot:



Output:

```

PS C:\Files\Python> & "C:/Users/LAPTOP_MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter your full name: Abdullah Khalid
Your username could be: abduallahkhalid86
PS C:\Files\Python>

```

Question:

Vowel/consonant counter

Code:

```

sentence = input("Enter a sentence: ")

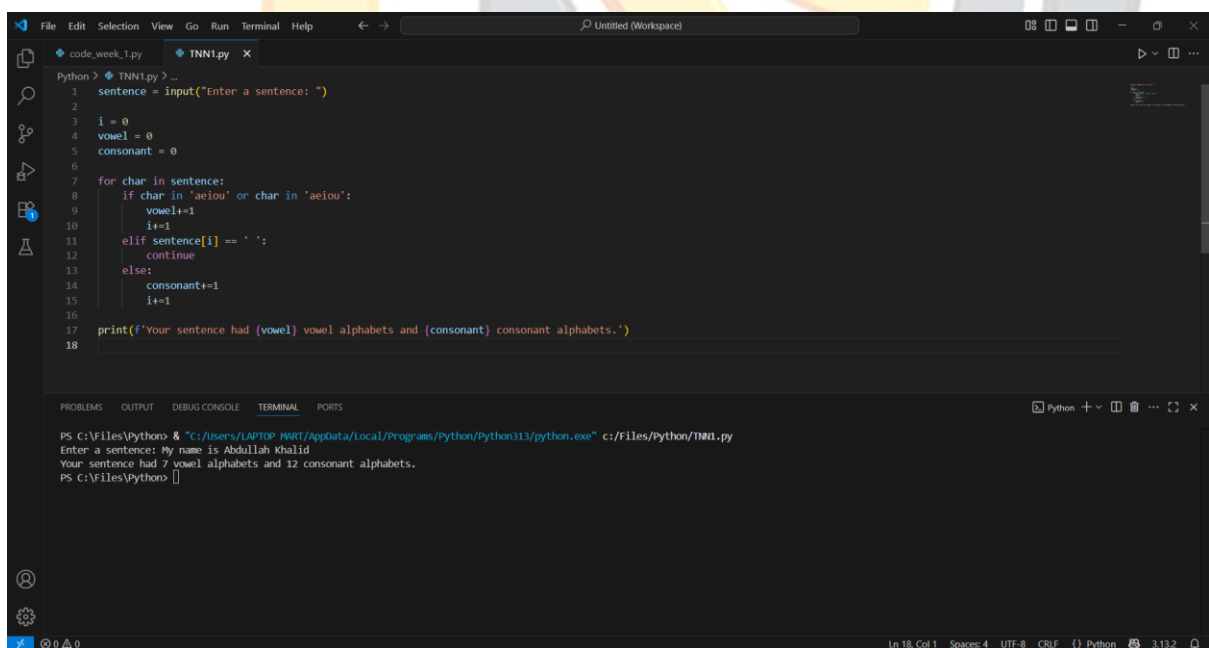
i = 0
vowel = 0
consonant = 0

for char in sentence:
    if char in 'aeiou' or char in 'AEIOU':
        vowel+=1
        i+=1
    elif sentence[i] == ' ':
        continue
    else:
        consonant+=1
        i+=1

print(f'Your sentence had {vowel} vowel alphabets and {consonant} consonant alphabets.')

```

Screenshot:



The screenshot shows a code editor with a Python script and its execution output in the terminal. The script counts the number of vowels and consonants in a given sentence. The terminal output shows the user entering the sentence "My name is Abdullah Khalid" and the program outputting "Your sentence had 7 vowel alphabets and 12 consonant alphabets."

```

Python> TNN1.py
1 sentence = input("Enter a sentence: ")
2
3 i = 0
4 vowel = 0
5 consonant = 0
6
7 for char in sentence:
8     if char in 'aeiou' or char in 'AEIOU':
9         vowel+=1
10        i+=1
11    elif sentence[i] == ' ':
12        continue
13    else:
14        consonant+=1
15        i+=1
16
17 print(f'Your sentence had {vowel} vowel alphabets and {consonant} consonant alphabets.')
18

```

```

PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter a sentence: My name is Abdullah Khalid
Your sentence had 7 vowel alphabets and 12 consonant alphabets.
PS C:\Files\Python>

```

Output:

```

PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter a sentence: My name is Abdullah Khalid
Your sentence had 7 vowel alphabets and 12 consonant alphabets.
PS C:\Files\Python>

```

Conditionals

Question:

Grade Calculator

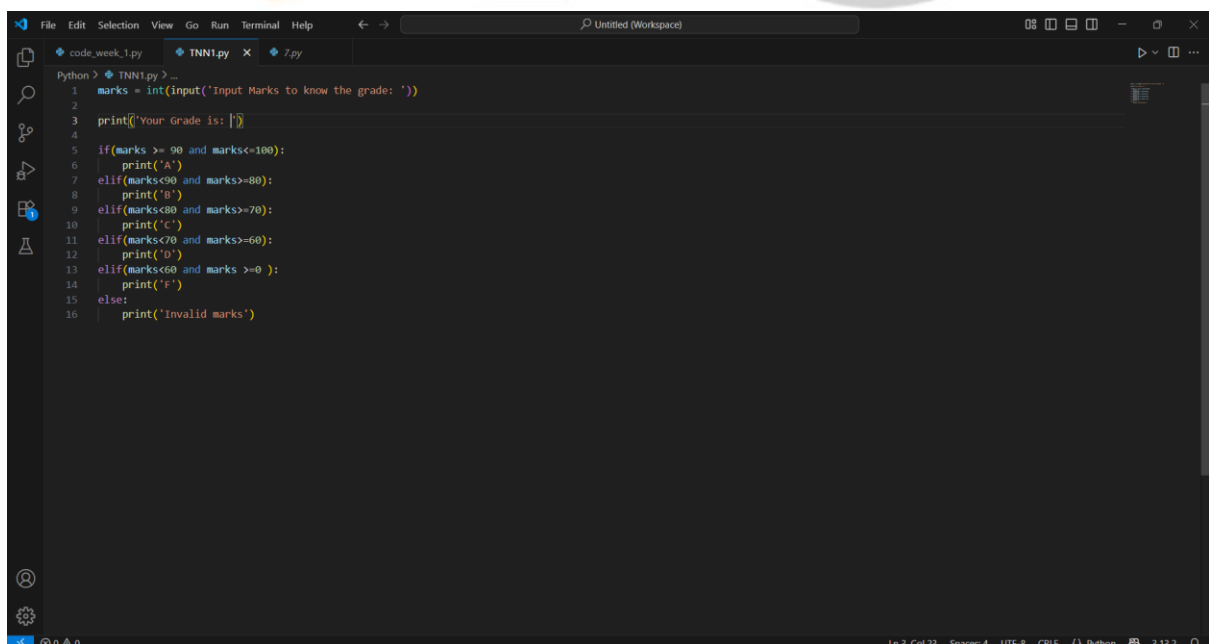
Code:

```
marks = int(input('Input Marks to know the grade: '))

print('Your Grade is: ')

if(marks >= 90 and marks<=100):
    print('A')
elif(marks<90 and marks>=80):
    print('B')
elif(marks<80 and marks>=70):
    print('C')
elif(marks<70 and marks>=60):
    print('D')
elif(marks<60 and marks >=0 ):
    print('F')
else:
    print('Invalid marks')
```

Screenshot:



Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Input Marks to know the grade: 79
Your Grade is:
C
PS C:\Files\Python> |
```

Question:

Password strength classifier.

Code:

```
import string

password = input("Enter your password: ")

score = 0

# Conditions
if len(password) >= 8:
    score += 1 # Good length

if any(char.islower() for char in password):
    score += 1 # Has lowercase

if any(char.isupper() for char in password):
    score += 1 # Has uppercase

if any(char.isdigit() for char in password):
    score += 1 # Has numbers

if any(char in string.punctuation for char in password):
    score += 1 # Has special characters

# Classify based on score
if score == 5:
    strength = "Very Strong"
elif score == 4:
    strength = "Strong"
elif score == 3:
    strength = "Moderate"
elif score == 2:
    strength = "Weak"
```

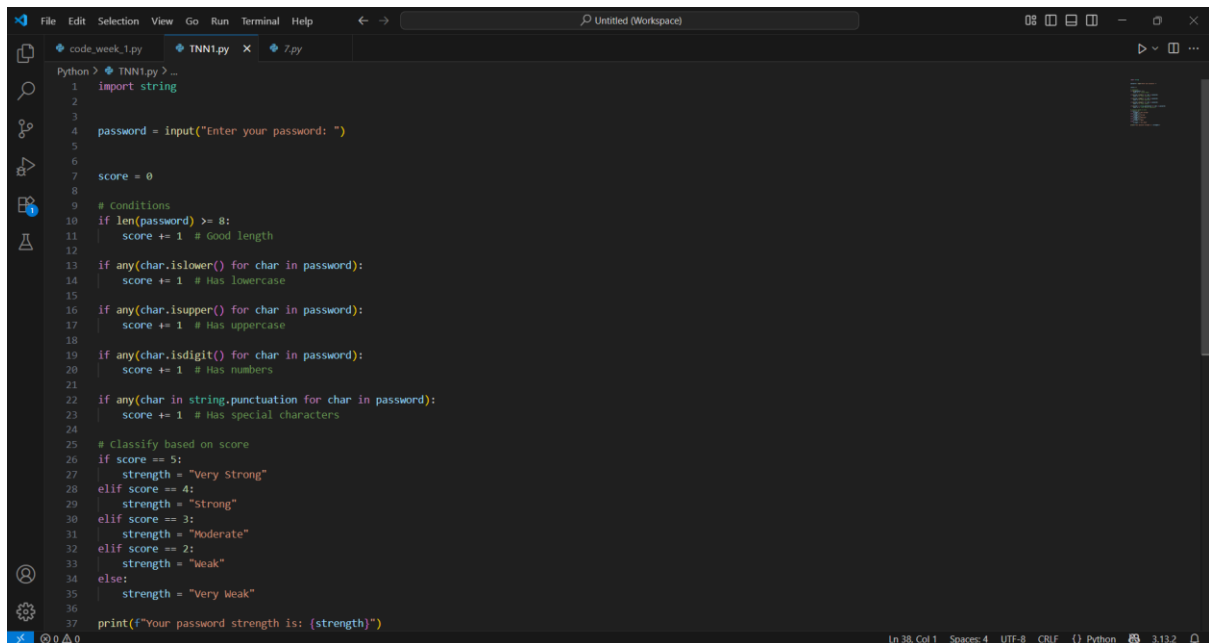
```

else:
    strength = "Very Weak"

print(f"Your password strength is: {strength}")

```

Screenshot:



```

Python > TNN1.py > ...
1  import string
2
3
4  password = input("Enter your password: ")
5
6
7  score = 0
8
9  # Conditions
10 if len(password) >= 8:
11     score += 1 # Good length
12
13 if any(char.islower() for char in password):
14     score += 1 # Has lowercase
15
16 if any(char.isupper() for char in password):
17     score += 1 # Has uppercase
18
19 if any(char.isdigit() for char in password):
20     score += 1 # Has numbers
21
22 if any(char in string.punctuation for char in password):
23     score += 1 # Has special characters
24
25 # Classify based on score
26 if score == 5:
27     strength = "Very Strong"
28 elif score == 4:
29     strength = "Strong"
30 elif score == 3:
31     strength = "Moderate"
32 elif score == 2:
33     strength = "Weak"
34 else:
35     strength = "Very Weak"
36
37 print(f"Your password strength is: {strength}")

```

Output:

```

PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter your password: AbdullahII66
Your password strength is: Strong
PS C:\Files\Python>

```

Question:

Multiplication Table

Code:

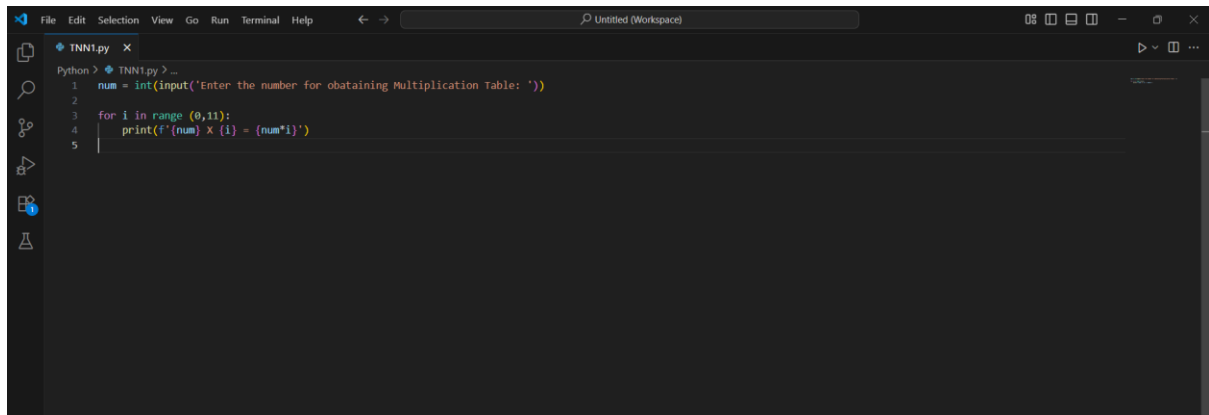
```

num = int(input('Enter the number for obataining Multiplication Table: '))

for i in range (0,11):
    print(f'{num} X {i} = {num*i}')

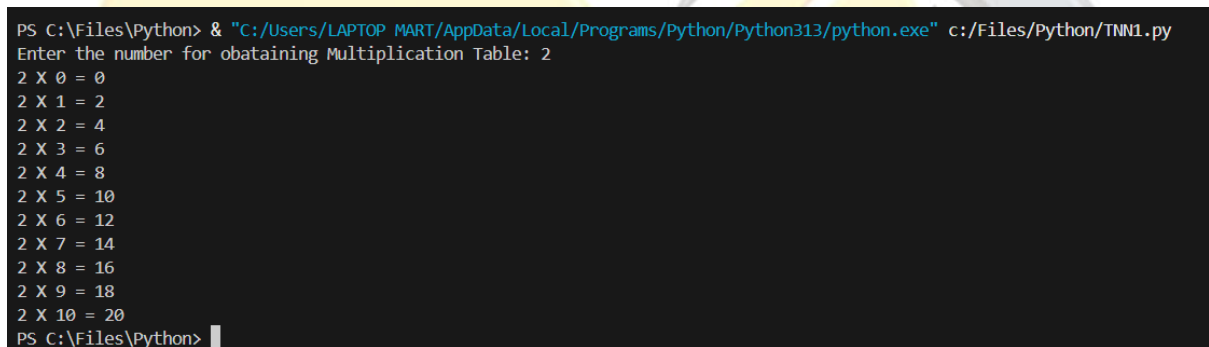
```

Screenshot:



```
File Edit Selection View Go Run Terminal Help
TNN1.py x
Python > TNN1.py > ...
1 num = int(input('Enter the number for obtaining Multiplication Table: '))
2
3 for i in range(0,11):
4     print(f'{num} X {i} = {num*i}')
5
```

Output:



```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter the number for obtaining Multiplication Table: 2
2 X 0 = 0
2 X 1 = 2
2 X 2 = 4
2 X 3 = 6
2 X 4 = 8
2 X 5 = 10
2 X 6 = 12
2 X 7 = 14
2 X 8 = 16
2 X 9 = 18
2 X 10 = 20
PS C:\Files\Python>
```

Question:

Sum numbers divisible by 3

Code:

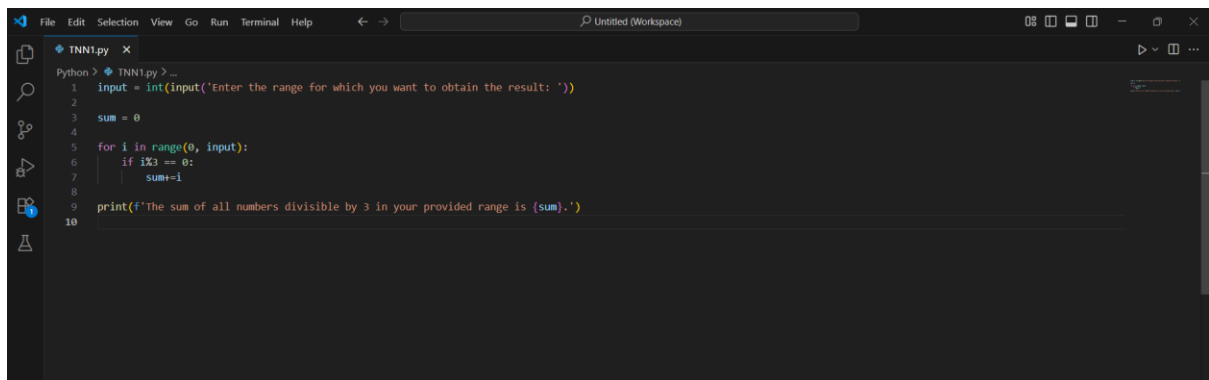
```
input = int(input('Enter the range for which you want to obtain the result: '))

sum = 0

for i in range(0, input):
    if i%3 == 0:
        sum+=i

print(f'The sum of all numbers divisible by 3 in your provided range is {sum}.')
```


Screenshot:



```
Python> TNN1.py
1 input = int(input('Enter the range for which you want to obtain the result: '))
2
3 sum = 0
4
5 for i in range(0, input):
6     if i%3 == 0:
7         sum+=i
8
9 print(f'The sum of all numbers divisible by 3 in your provided range is {sum}.')
10
```

Output:

```
PS C:\Files\Python> & "C:/Users/LAPTOP MART/AppData/Local/Programs/Python/Python313/python.exe" c:/Files/Python/TNN1.py
Enter the range for which you want to obtain the result: 10
The sum of all numbers divisible by 3 in your provided range is 18.
PS C:\Files\Python> |
```

Weekly Challenge

Question:

CLI Unit Converter: length, weight, temperature menus + loops & conditionals

Code:

```
def LengthConversion():
    while True:
        print('\n--- Length Conversions ---')
        print('1. Meters to Feet')
        print('2. Feet to Meters')
        print('3. Kilometers to Miles')
        print('4. Miles to Kilometers')
        print('5. Centimeters to Inches')
        print('6. Inches to Centimeters')
        print('0. Back to Main Menu')

        choice = int(input('Choose a conversion: '))

        if choice == 0:
            break
        elif choice == 1:
            val = float(input("Enter meters: "))
            print(f"{val} m = {val * 3.28084:.2f} ft")
```

```

elif choice == 2:
    val = float(input("Enter feet: "))
    print(f"{val} ft = {val / 3.28084:.2f} m")
elif choice == 3:
    val = float(input("Enter kilometers: "))
    print(f"{val} km = {val * 0.621371:.2f} miles")
elif choice == 4:
    val = float(input("Enter miles: "))
    print(f"{val} miles = {val / 0.621371:.2f} km")
elif choice == 5:
    val = float(input("Enter centimeters: "))
    print(f"{val} cm = {val / 2.54:.2f} inches")
elif choice == 6:
    val = float(input("Enter inches: "))
    print(f"{val} inches = {val * 2.54:.2f} cm")
else:
    print("Invalid choice. Try again.")

def WeightConversion():
    while True:
        print('\n--- Weight Conversions ---')
        print('1. Kilograms to Pounds')
        print('2. Pounds to Kilograms')
        print('3. Grams to Ounces')
        print('4. Ounces to Grams')
        print('0. Back to Main Menu')

        choice = int(input('Choose a conversion: '))

        if choice == 0:
            break
        elif choice == 1:
            val = float(input("Enter kilograms: "))
            print(f"{val} kg = {val * 2.20462:.2f} lbs")
        elif choice == 2:
            val = float(input("Enter pounds: "))
            print(f"{val} lbs = {val / 2.20462:.2f} kg")
        elif choice == 3:
            val = float(input("Enter grams: "))
            print(f"{val} g = {val / 28.3495:.2f} oz")
        elif choice == 4:
            val = float(input("Enter ounces: "))
            print(f"{val} oz = {val * 28.3495:.2f} g")
        else:
            print("Invalid choice. Try again.")

def TemperatureConversion():

```

```

while True:
    print('\n--- Temperature Conversions ---')
    print('1. Celsius to Fahrenheit')
    print('2. Fahrenheit to Celsius')
    print('3. Celsius to Kelvin')
    print('4. Kelvin to Celsius')
    print('0. Back to Main Menu')

    choice = int(input('Choose a conversion: '))

    if choice == 0:
        break
    elif choice == 1:
        val = float(input("Enter Celsius: "))
        print(f"{val}°C = {(val * 9/5) + 32:.2f}°F")
    elif choice == 2:
        val = float(input("Enter Fahrenheit: "))
        print(f"{val}°F = {(val - 32) * 5/9:.2f}°C")
    elif choice == 3:
        val = float(input("Enter Celsius: "))
        print(f"{val}°C = {val + 273.15:.2f} K")
    elif choice == 4:
        val = float(input("Enter Kelvin: "))
        print(f"{val} K = {val - 273.15:.2f}°C")
    else:
        print("Invalid choice. Try again.")

# --- Main Program ---
while True:
    print('\n===== UNIT CONVERTER =====')
    print('1. Length conversions')
    print('2. Weight conversions')
    print('3. Temperature conversions')
    print('0. Exit')

    try:
        choice = int(input('Enter your choice: '))
    except ValueError:
        print("Please enter a valid number.")
        continue

    if choice == 0:
        print("Thanks for using the converter. Goodbye!")
        break
    elif choice == 1:
        LengthConversion()
    elif choice == 2:
        WeightConversion()

```

```

elif choice == 3:
    TemperatureConversion()
else:
    print("Invalid input. Please select from the menu.")

```

Screenshot:

```

Python > TNN1.py > LengthConversion
1 def LengthConversion():
2     while True:
3         print('\n--- Length Conversions ---')
4         print('1. Meters to Feet')
5         print('2. Feet to Meters')
6         print('3. Kilometers to Miles')
7         print('4. Miles to Kilometers')
8         print('5. Centimeters to Inches')
9         print('6. Inches to Centimeters')
10        print('0. Back to Main Menu')
11
12        choice = int(input('Choose a conversion: '))
13
14        if choice == 0:
15            break
16        elif choice == 1:
17            val = float(input("Enter meters: "))
18            print(f"({val}) m = ({val * 3.28084:.2f}) ft")
19        elif choice == 2:
20            val = float(input("Enter feet: "))
21            print(f"({val}) ft = ({val / 3.28084:.2f}) m")
22        elif choice == 3:
23            val = float(input("Enter kilometers: "))
24            print(f"({val}) km = ({val * 0.621371:.2f}) miles")
25        elif choice == 4:
26            val = float(input("Enter miles: "))
27            print(f"({val}) miles = ({val / 0.621371:.2f}) km")
28        elif choice == 5:
29            val = float(input("Enter centimeters: "))
30            print(f"({val}) cm = ({val / 2.54:.2f}) inches")
31        elif choice == 6:
32            val = float(input("Enter inches: "))
33            print(f"({val}) inches = ({val * 2.54:.2f}) cm")
34        else:
35            print("Invalid choice. Try again.")
36
37

```

Output:

```

PS C:\Files\Python> & "C:\Users\LAPTOP_MART\AppData\Local\Programs\Python\Python313\python.exe" c:\Files\Python\TNN1.py
===== UNIT CONVERTER =====
1. Length conversions
2. Weight conversions
3. Temperature conversions
0. Exit
Enter your choice: 1

--- Length Conversions ---
1. Meters to Feet
2. Feet to Meters
3. Kilometers to Miles
4. Miles to Kilometers
5. Centimeters to Inches
6. Inches to Centimeters
0. Back to Main Menu
Choose a conversion: 2
Enter feet: 6
6.0 ft = 1.83 m

--- Length Conversions ---
1. Meters to Feet
2. Feet to Meters
3. Kilometers to Miles
4. Miles to Kilometers
5. Centimeters to Inches
6. Inches to Centimeters
0. Back to Main Menu
Choose a conversion: 0

===== UNIT CONVERTER =====
1. Length conversions
2. Weight conversions
3. Temperature conversions
0. Exit
Enter your choice: 0
Thanks for using the converter. Goodbye!
PS C:\Files\Python>

```

Learnings and Challenges:

During the first week of my internship, I obtained a solid base in python programming through practical functions and challenges. Starting with installation and setup, I became familiar with running a python script and understanding how Syntax and Indentation play an important role in writing readable and error-free codes.

One of the major learns was understanding the use of dynamic typing systems of python and basic input/output functions. It was particularly helpful in arithmetic operations such as user profile construction, variable swapping without temporary variables, and average, BMI and simple interest calculation.

Conditional statements and logical operations were also valuable in making real-world programs such as grade calculator, password strength checkers and even a command-line unit converter. Through them, I learned how the python handles decision making, ends and menu-operated programs in a user friendly manner.

A individual highlight was a weekly challenge, creating a CLI unit converter. It required a combination of integrated loops, conditional, functions and user inputs in an application. This helped me understand the program structure, modular thinking and user interaction flow.

However, I also faced some challenges. The most common thing was to debug indentation errors, especially when to write nested loops or conditional. It took some time to adjust the strict indentation rules of the python. Another minor challenge was to understand how to properly cast the input in the correct data type (eg, transforming string input into a float or int). But through the frequent practice and testing of each block of the code, I was able to remove these obstacles.

Overall, this week has helped me to strengthen my basics and create confidence in writing clean and work.

TECHNIK NEST