TECHNIK NEST

INNOVATIVE MINDS, NESTING SUCCESS

Name: Umme Habiba

Intern ID: TN/IN01/PY004

Email ID : saeedhabiba001@gmail.com

Internship Domain : Python Internee

Task Week : 4th

Instructor Name : Hassan Ali

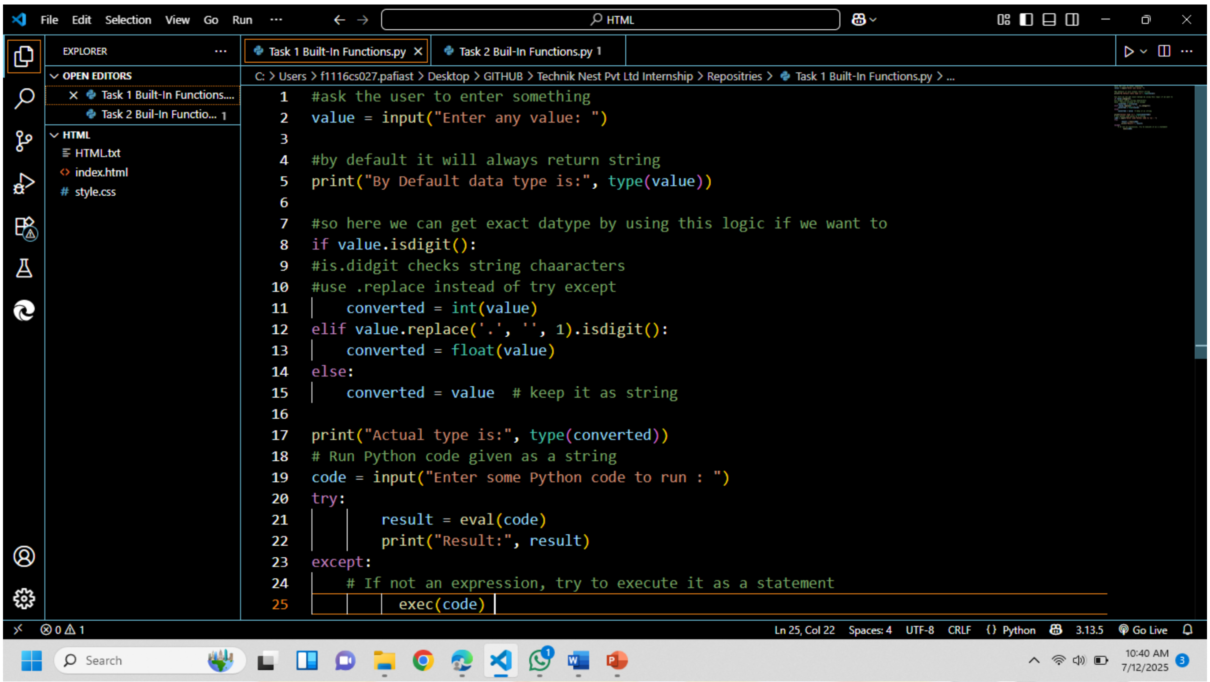
Task 1 :

Ask user to input any value. Use type() to check its data type. Use exec() to execute a string as Python code.

Solution :

Code Snippet & Screenshot

```
#ask the user to enter something
value = input("Enter any value: ")
#by default it will always return string
print("By Default data type is:", type(value))
#so here we can get exact datype by using this logic if we want to
if value.isdigit():
#is.didgit checks string chaaracters
#use .replace instead of try except
    converted = int(value)
elif value.replace('.', '', 1).isdigit():
    converted = float(value)
else:
    converted = value  # keep it as string
print("Actual type is:", type(converted))
# Run Python code given as a string
code = input("Enter some Python code to run : ")
try:
        result = eval(code)
        print("Result:", result)
except:
    # If not an expression, try to execute it as a statement
          exec(code)
```


File Edit Selection View Go Run ...
HTML
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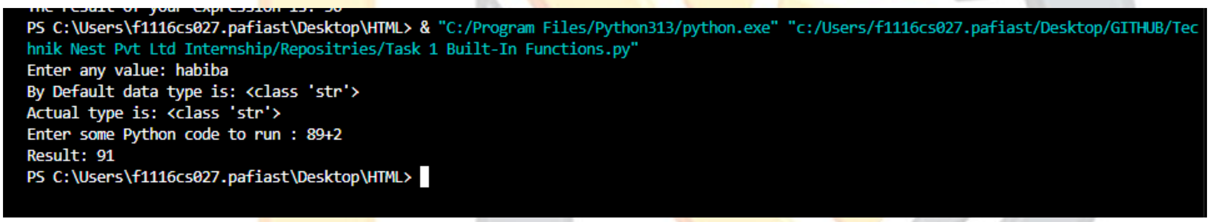
OPEN EDITORS
Task 1 Built-In Functions....
Task 2 Buil-In Functio... 1
HTML
HTML.txt
index.html
style.css
Task 1 Built-In Functions.py
Task 2 Buil-In Functions.py 1
C: > Users > f1116cs027.pafiast > Desktop > GITHUB > Technik Nest Pvt Ltd Internship > Repositries > Task 1 Built-In Functions.py > ...
Ln 25, Col 22 Spaces: 4 UTF-8 CRLF {} Python 3.13.5 Go Live
Search
10:40 AM
7/12/2025

```python
#ask the user to enter something
value = input("Enter any value: ")

#by default it will always return string
print("By Default data type is:", type(value))

#so here we can get exact datype by using this logic if we want to
if value.isdigit():
#is.didgit checks string chaaracters
#use .replace instead of try except
    converted = int(value)
elif value.replace('.', '', 1).isdigit():
    converted = float(value)
else:
    converted = value  # keep it as string

print("Actual type is:", type(converted))
# Run Python code given as a string
code = input("Enter some Python code to run : ")
try:
        result = eval(code)
        print("Result:", result)
except:
    # If not an expression, try to execute it as a statement
          exec(code)
```



```
The result of your expression is: 50
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> & "C:/Program Files/Python313/python.exe" "c:/Users/f1116cs027.pafiast/Desktop/GITHUB/Technik Nest Pvt Ltd Internship/Repositries/Task 1 Built-In Functions.py"
Enter any value: habiba
By Default data type is: <class 'str'>
Actual type is: <class 'str'>
Enter some Python code to run : 89+2
Result: 91
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> 
```

Explanation:

- Ask user for a value.
- By default its sets to a string return.
- So I converted to get actual dattype.
- While I was not using try except so I used a new thing .replace that detects float datatype by replacing . with empty string.
- Now asked for any python code and then prints its result using exe().

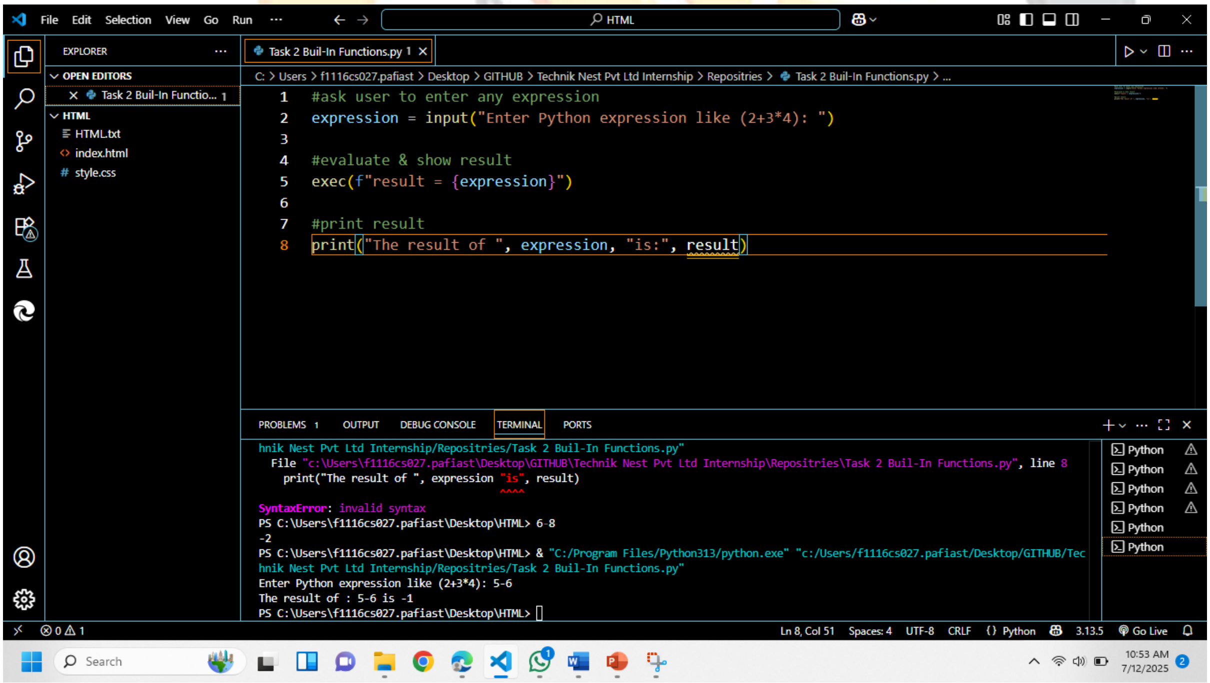
Task 2 :

Ask user for a Python expression as a string (like '2 + 3 * 4') and evaluate it using exec(). Show result.

Solution :

Code Snippet & Screenshot

```
#ask user to enter any expression

expression = input("Enter Python expression like (2+3*4): ")

#evaluate & show result

exec(f"result = {expression}")

#print result

print("The result of ", expression, "is:", result)
```



```
#ask user to enter any expression
expression = input("Enter Python expression like (2+3*4): ")

#evaluate & show result
exec(f"result = {expression}")

#print result
print("The result of ", expression, "is:", result)
```

```
hnik Nest Pvt Ltd Internship/Repositries/Task 2 Buil-In Functions.py"
  File "c:\Users\f1116cs027.pafiast\Desktop\GITHUB\Technik Nest Pvt Ltd Internship\Repositries\Task 2 Buil-In Functions.py", line 8
    print("The result of ", expression "is", result)
                                       ^^^^

SyntaxError: invalid syntax
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> 6-8
-2
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> & "C:/Program Files/Python313/python.exe" "c:/Users/f1116cs027.pafiast/Desktop/GITHUB/Tec
hnik Nest Pvt Ltd Internship/Repositries/Task 2 Buil-In Functions.py"
Enter Python expression like (2+3*4): 5-6
The result of : 5-6 is -1
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> 
```

Explanation:

- Ask user for any expression.
- Use exe() to execute the result of expression.

Task 3 :

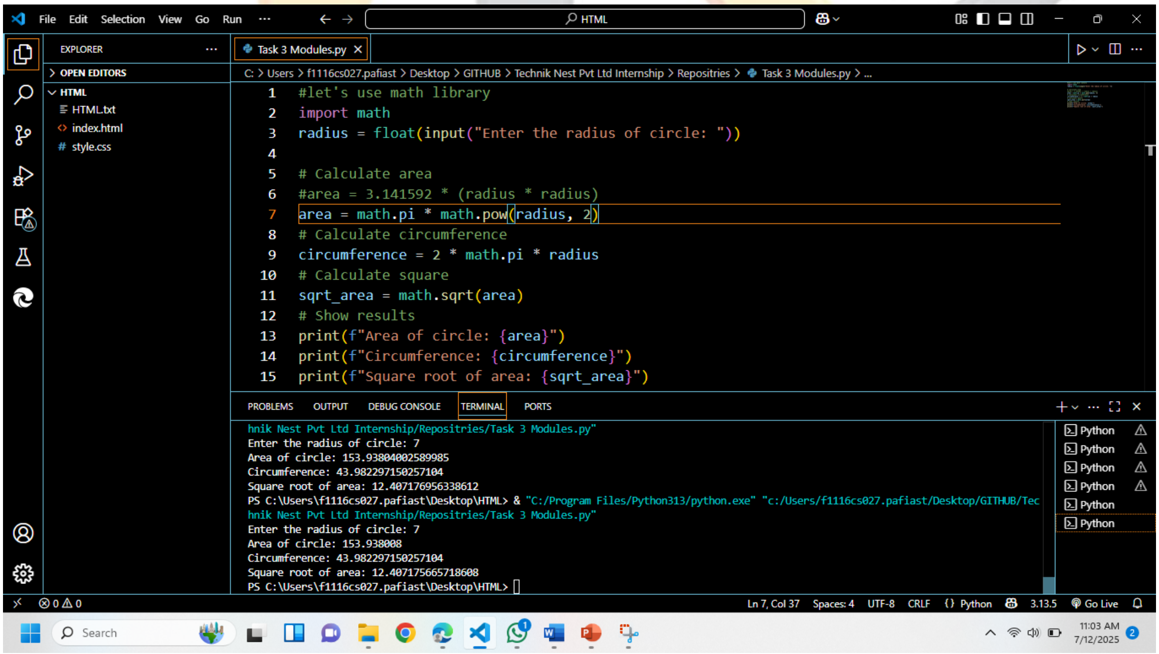
Use math module to take a radius input from user and calculate:

- Area of circle, circumference, and square root of area.

Solution :

Code Snippet & Screenshot

```
#let's use math library
import math
radius = float(input("Enter the radius of circle: "))
# Calculate area
#area = 3.141592 * (radius * radius)
area = math.pi * math.pow(radius, 2)
# Calculate circumference
circumference = 2 * math.pi * radius
# Calculate square
sqrt_area = math.sqrt(area)
# Show results
print(f"Area of circle: {area}")
print(f"Circumference: {circumference}")
print(f"Square root of area: {sqrt_area}")
```



```python
#let's use math library
import math
radius = float(input("Enter the radius of circle: "))

# Calculate area
#area = 3.141592 * (radius * radius)
area = math.pi * math.pow(radius, 2)
# Calculate circumference
circumference = 2 * math.pi * radius
# Calculate square
sqrt_area = math.sqrt(area)
# Show results
print(f"Area of circle: {area}")
print(f"Circumference: {circumference}")
print(f"Square root of area: {sqrt_area}")
```

```
hnik Nest Pvt Ltd Internship/Repositries/Task 3 Modules.py"
Enter the radius of circle: 7
Area of circle: 153.93804002589985
Circumference: 43.982297150257104
Square root of area: 12.407176956338612
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> & "C:/Program Files/Python313/python.exe" "c:/Users/f1116cs027.pafiast/Desktop/GITHUB/Tec
hnik Nest Pvt Ltd Internship/Repositries/Task 3 Modules.py"
Enter the radius of circle: 7
Area of circle: 153.938008
Circumference: 43.982297150257104
Square root of area: 12.407175665718608
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> 
```

Explanation:

- Calculate Area in both ways and both returns in same answer.

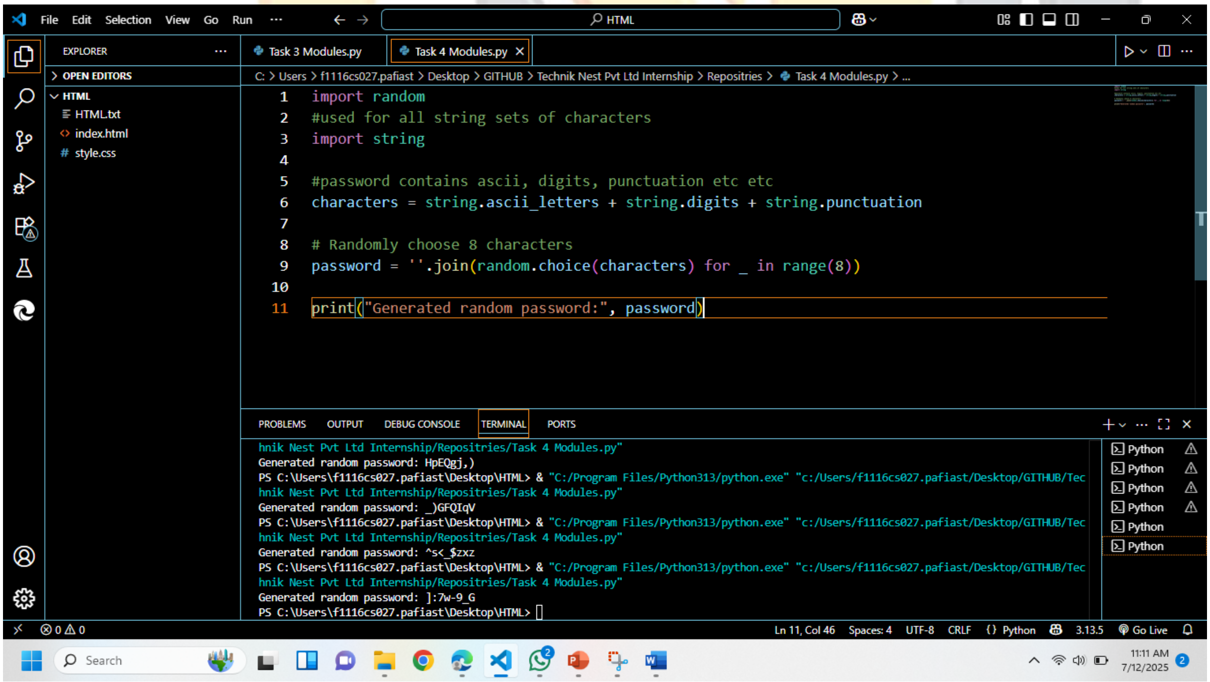
Task 4 :

Use random module to generate a random 8-character password using letters, numbers, and symbols.

Solution :

Code Snippet & Screenshot

```
import random

#used for all string sets of characters

import string

#password contains ascii, digits, punctuation etc etc

characters = string.ascii_letters + string.digits + string.punctuation

# Randomly choose 8 characters

password = ''.join(random.choice(characters) for _ in range(8))

print("Generated random password:", password)
```



```
import random
#used for all string sets of characters
import string

#password contains ascii, digits, punctuation etc etc
characters = string.ascii_letters + string.digits + string.punctuation

# Randomly choose 8 characters
password = ''.join(random.choice(characters) for _ in range(8))

print("Generated random password:", password)
```

```
hnik Nest Pvt Ltd Internship/Repositries/Task 4 Modules.py"
Generated random password: HpEQgj,)
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> & "C:/Program Files/Python313/python.exe" "c:/Users/f1116cs027.pafiast/Desktop/GITHUB/Tec
hnik Nest Pvt Ltd Internship/Repositries/Task 4 Modules.py"
Generated random password: _)GFQIqV
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> & "C:/Program Files/Python313/python.exe" "c:/Users/f1116cs027.pafiast/Desktop/GITHUB/Tec
hnik Nest Pvt Ltd Internship/Repositries/Task 4 Modules.py"
Generated random password: ^s<_$zxz
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> & "C:/Program Files/Python313/python.exe" "c:/Users/f1116cs027.pafiast/Desktop/GITHUB/Tec
hnik Nest Pvt Ltd Internship/Repositries/Task 4 Modules.py"
Generated random password: ]:7w-9_G
PS C:\Users\f1116cs027.pafiast\Desktop\HTML>
```

File Edit Selection View Go Run ...
HTML
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HTML
HTML.txt
index.html
style.css
Task 3 Modules.py
Task 4 Modules.py
C: > Users > f1116cs027.pafiast > Desktop > GITHUB > Technik Nest Pvt Ltd Internship > Repositries > Task 4 Modules.py > ...
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
Ln 11, Col 46 Spaces: 4 UTF-8 CRLF {} Python 3.13.5 Go Live
Search
11:11 AM
7/12/2025

Explanation:

- Use string and random module .
- Join use to join all characters.
- Random.choice use to choose characters randomly.
- For _ in ramge is loop that runs for 8 times for 8 characters.

Task 5 :

Using datetime module, ask user for their birth date and show:

- Their age in years and number of days lived.

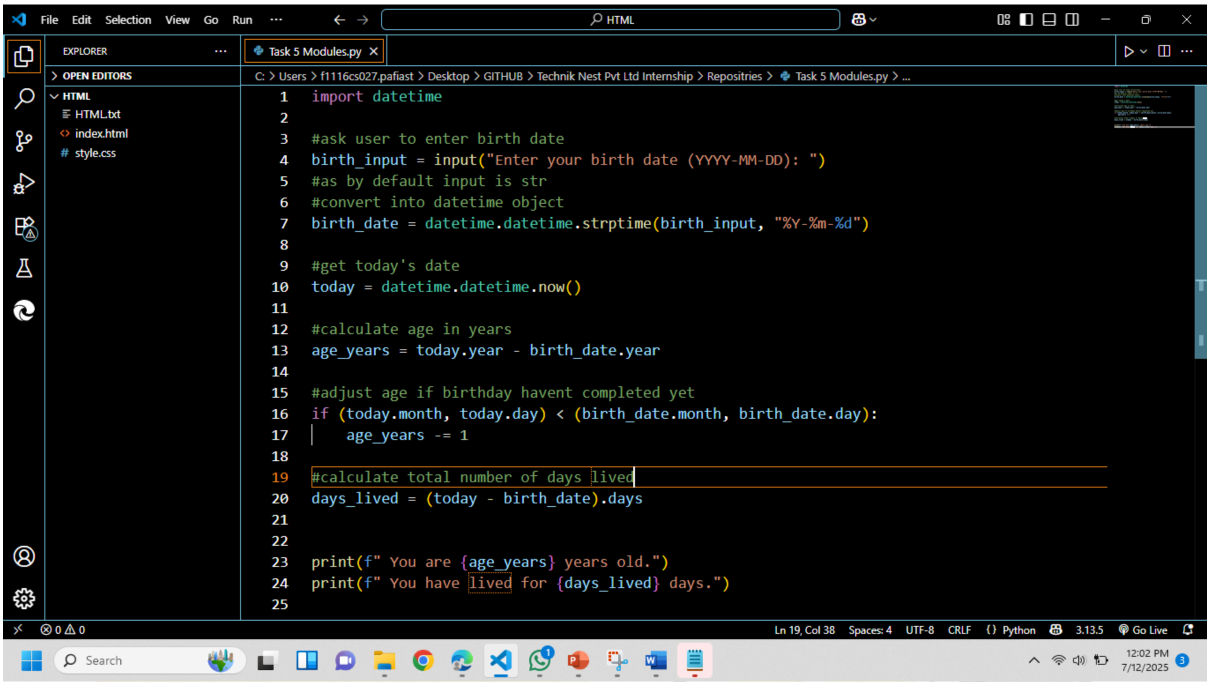
Solution :

Code Snippet & Screenshot

```
import datetime
#ask user to enter birth date
birth_input = input("Enter your birth date (YYYY-MM-DD): ")
#as by default input is str
#convert into datetime object
birth_date = datetime.datetime.strptime(birth_input, "%Y-%m-%d")
#get today's date
today = datetime.datetime.now()
#calculate age in years
age_years = today.year - birth_date.year
#adjust age if birthday havent completed yet
if (today.month, today.day) < (birth_date.month, birth_date.day):
    age_years -= 1
#calculate total number of days lived
days_lived = (today - birth_date).days
print(f" You are {age_years} years old.")
print(f" You have lived for {days_lived} days.")
```

Explanation:

- Take birth date from user.
- Create class of datetime.
- Use strptime to divide the date into its components.
- Apply today's date to calculate accurate.
- Minus 1 year if birthday has not happened yet.


File Edit Selection View Go Run ···
HTML
EXPLORER
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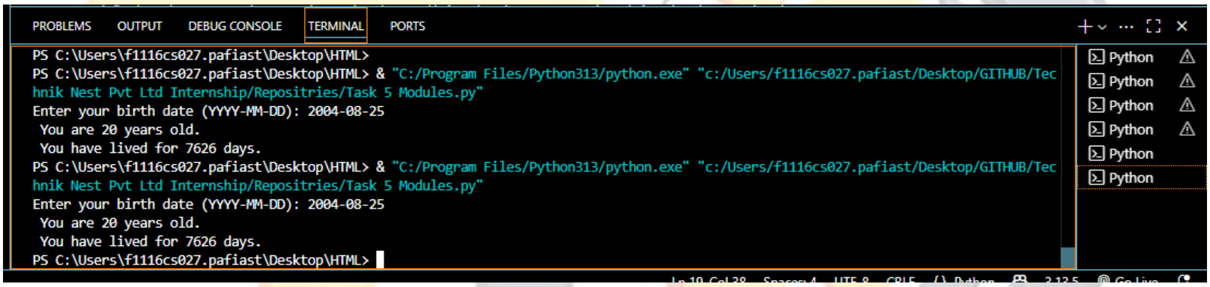
style.css
Task 5 Modules.py
C: > Users > f1116cs027.pafiast > Desktop > GITHUB > Technik Nest Pvt Ltd Internship > Repositries > Task 5 Modules.py > ...
⊗ 0 ⚠ 0
Ln 19, Col 38 Spaces: 4 UTF-8 CRLF {} Python 3.13.5 Go Live
Search
12:02 PM
7/12/2025

```python
import datetime

#ask user to enter birth date
birth_input = input("Enter your birth date (YYYY-MM-DD): ")
#as by default input is str
#convert into datetime object
birth_date = datetime.datetime.strptime(birth_input, "%Y-%m-%d")

#get today's date
today = datetime.datetime.now()

#calculate age in years
age_years = today.year - birth_date.year

#adjust age if birthday havent completed yet
if (today.month, today.day) < (birth_date.month, birth_date.day):
    age_years -= 1

#calculate total number of days lived
days_lived = (today - birth_date).days


print(f" You are {age_years} years old.")
print(f" You have lived for {days_lived} days.")
```



```
PS C:\Users\f1116cs027.pafiast\Desktop\HTML>
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> & "C:/Program Files/Python313/python.exe" "c:/Users/f1116cs027.pafiast/Desktop/GITHUB/Tec
hnik Nest Pvt Ltd Internship/Repositries/Task 5 Modules.py"
Enter your birth date (YYYY-MM-DD): 2004-08-25
 You are 20 years old.
 You have lived for 7626 days.
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> & "C:/Program Files/Python313/python.exe" "c:/Users/f1116cs027.pafiast/Desktop/GITHUB/Tec
hnik Nest Pvt Ltd Internship/Repositries/Task 5 Modules.py"
Enter your birth date (YYYY-MM-DD): 2004-08-25
 You are 20 years old.
 You have lived for 7626 days.
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> 
```

Task 6 :

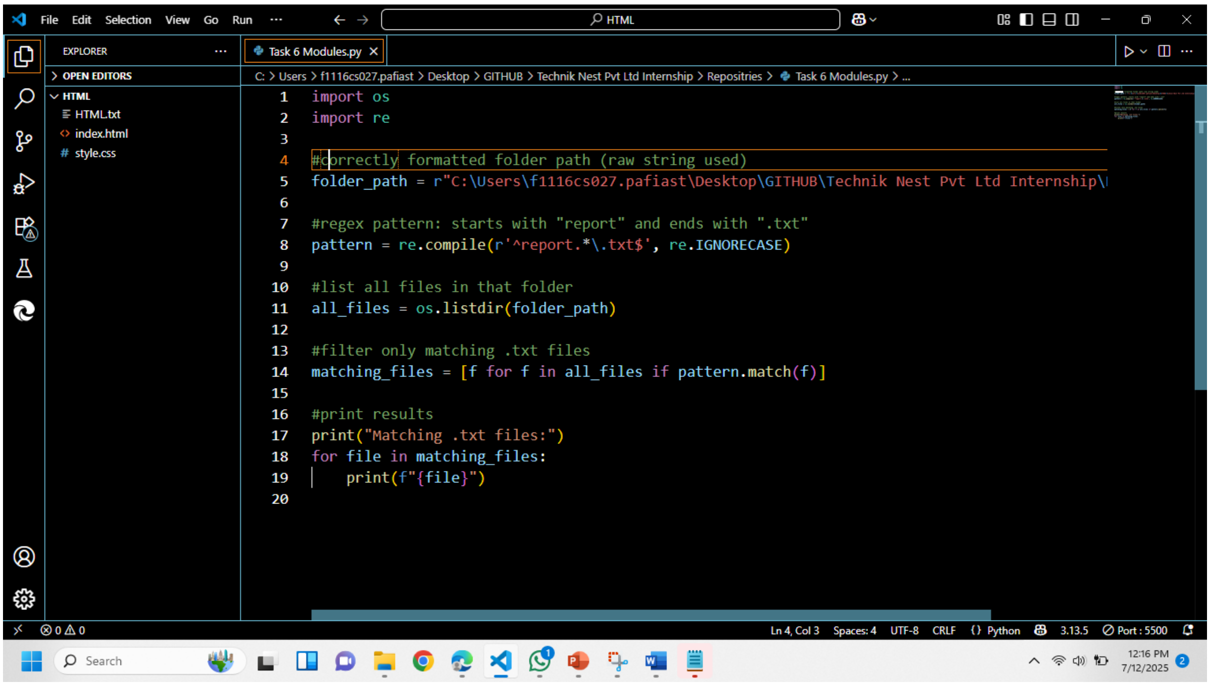
Create a script using os and re that lists all `.txt` files from a folder and filters only those that match a pattern (e.g., start with 'report').

Solution :

Code Snippet & Screenshot

```
import os

import re

#correctly formatted folder path (raw string used)

folder_path = r"C:\Users\f1116cs027.pafiast\Desktop\GITHUB\Technik Nest Pvt Ltd
Internship\Repositries"

#regex pattern: starts with "report" and ends with ".txt"

pattern = re.compile(r'^report.*\.txt$', re.IGNORECASE)

#list all files in that folder
```

```
all_files = os.listdir(folder_path)

#filter only matching .txt files

matching_files = [f for f in all_files if pattern.match(f)]

#print results

print("Matching .txt files:")

for file in matching_files:

    print(f"{file}")
```



File Edit Selection View Go Run ···
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Task 6 Modules.py
C: > Users > f1116cs027.pafiast > Desktop > GITHUB > Technik Nest Pvt Ltd Internship > Repositries > Task 6 Modules.py > ...
Ln 4, Col 3 Spaces: 4 UTF-8 CRLF {} Python 3.13.5 Port : 5500
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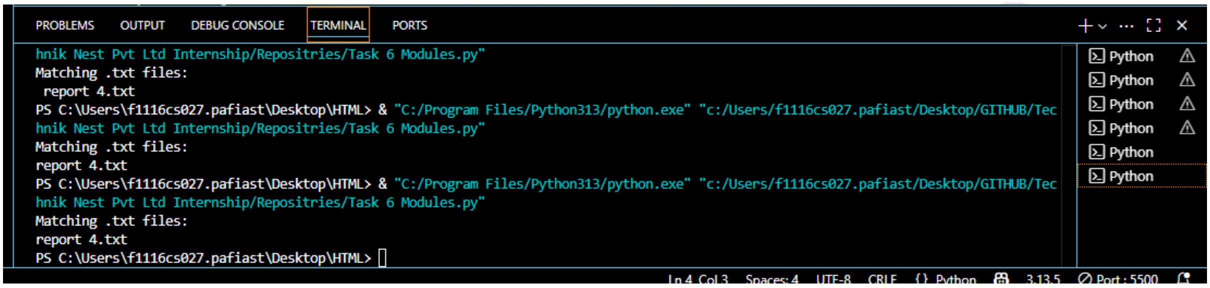
12:16 PM
7/12/2025

```
import os
import re

#correctly formatted folder path (raw string used)
folder_path = r"C:\Users\f1116cs027.pafiast\Desktop\GITHUB\Technik Nest Pvt Ltd Internship\

#regex pattern: starts with "report" and ends with ".txt"
pattern = re.compile(r'^report.*\.txt$', re.IGNORECASE)

#list all files in that folder
all_files = os.listdir(folder_path)

#filter only matching .txt files
matching_files = [f for f in all_files if pattern.match(f)]

#print results
print("Matching .txt files:")
for file in matching_files:
    print(f"{file}")
```



```
hnik Nest Pvt Ltd Internship/Repositries/Task 6 Modules.py"
Matching .txt files:
 report 4.txt
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> & "C:/Program Files/Python313/python.exe" "c:/Users/f1116cs027.pafiast/Desktop/GITHUB/Tec
hnik Nest Pvt Ltd Internship/Repositries/Task 6 Modules.py"
Matching .txt files:
report 4.txt
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> & "C:/Program Files/Python313/python.exe" "c:/Users/f1116cs027.pafiast/Desktop/GITHUB/Tec
hnik Nest Pvt Ltd Internship/Repositries/Task 6 Modules.py"
Matching .txt files:
report 4.txt
PS C:\Users\f1116cs027.pafiast\Desktop\HTML> 
```

Explanation:

- Import os and re.
- Use regex pattern.
- Add path to folder.