

Sample Coding Questions

Input-Output

Printing Patterns

Write a program to print a simple triangle pattern using asterisks (*).

```
n = int(input("Enter the number of rows: "))
for i in range(1, n + 1):
    print("*" * i)
```

Basic Calculator

Build a calculator program that takes two numbers and an operator (+, -, *, /) as input and performs the corresponding operation.

```
num1 = float(input("Enter the first number: "))
operator = input("Enter the operator (+, -, *, /): ")
num2 = float(input("Enter the second number: "))
```

```
if operator == "+":
    result = num1 + num2
elif operator == "-":
    result = num1 - num2
elif operator == "*":
    result = num1 * num2
elif operator == "/":
    result = num1 / num2
```

```
else:  
    result = "Invalid operator"
```

```
print("Result:", result)
```

String Manipulation

Write a program that reads a sentence from the user and capitalizes the first letter of each word.

```
sentence = input("Enter a sentence: ")  
capitalized_sentence = sentence.title()  
print("Capitalized sentence:", capitalized_sentence)
```

Length of Words

Create a program that reads a sentence from the user and prints the length of each word.

```
sentence = input("Enter a sentence: ")  
words = sentence.split()  
for word in words:  
    print(f"Length of '{word}': {len(word)}")
```

String Reversal

Develop a program that takes a string from the user and prints its reverse.

```
input_string = input("Enter a string: ")  
reversed_string = input_string[::-1]
```

```
print("Reversed string:", reversed_string)
```

Square Roots Sum

Write a program to read two numbers from the user and calculate the sum of their square roots.

```
import math
```

```
num1 = float(input("Enter the first number: "))
```

```
num2 = float(input("Enter the second number: "))
```

```
sum_of_square_roots = math.sqrt(num1) + math.sqrt(num2)
```

```
print("Sum of square roots:", sum_of_square_roots)
```

Maximum of Three Numbers

Build a program that reads three numbers from the user and prints the maximum of them.

```
num1 = float(input("Enter the first number: "))
```

```
num2 = float(input("Enter the second number: "))
```

```
num3 = float(input("Enter the third number: "))
```

```
maximum = max(num1, num2, num3)
```

```
print("Maximum:", maximum)
```

Simple Calculator

Problem: Write a program that takes two

#numbers as input from the user and performs basic arithmetic

#operations (addition, subtraction, multiplication, division) on them.

```
num1 = float(input("Enter the first number: "))  
num2 = float(input("Enter the second number: "))
```

```
sum_result = num1 + num2  
diff_result = num1 - num2  
product_result = num1 * num2  
division_result = num1 / num2
```

```
print("Sum:", sum_result)  
print("Difference:", diff_result)  
print("Product:", product_result)  
print("Division:", division_result)
```

Area of Rectangle

**# Problem: Build a program that takes the
#length and width of a rectangle as input from
#the user and calculates its area.**

```
length = float(input("Enter the length of the rectangle: "))  
width = float(input("Enter the width of the rectangle: "))  
  
area = length * width  
print("Area of the rectangle:", area)
```

Temperature Conversion

**# Problem: Write a program that reads a temperature in Celsius
#from the user and converts it to Fahrenheit using the formula (Celsius * 9/5)
+ 32.**

```
celsius = float(input("Enter temperature in Celsius: "))  
fahrenheit = (celsius * 9/5) + 32  
print(f"{celsius}°C is equivalent to {fahrenheit}°F")
```

Simple Interest Calculator

**# Problem: Create a program that reads the principal amount,
#interest rate (as a decimal), and time period (in years) from the user,
#and calculates the simple interest using the formula
#Simple Interest = Principal * Rate * Time.**

```
principal = float(input("Enter principal amount: "))  
rate = float(input("Enter interest rate (as a decimal): "))  
time = float(input("Enter time period in years: "))  
simple_interest = principal * rate * time  
print(f"The simple interest is: ${simple_interest:.2f}")
```

User Greeting

**# Problem: Write a program that takes the user's name as
#input and then prints a greeting message with their name.**

```
name = input("Enter your name: ")  
print(f"Hello, {name}! Welcome to our program.")
```

Age Calculator

Problem: Build a program that reads the user's birth year and calculates their age.

```
current_year = 2023
birth_year = int(input("Enter your birth year: "))
age = current_year - birth_year
print("Your age:", age)
```

String Concatenation

**# Problem: Write a program that takes the user's first name
#and last name as input and prints a personalized greeting.**

```
first_name = input("Enter your first name: ")
last_name = input("Enter your last name: ")
full_name = first_name + " " + last_name
print(f"Hello, {full_name}! Nice to meet you.")
```

Area of Circle

**# Problem: Create a program that reads the radius of a circle from the user
and calculates
#its area using the formula $\text{Area} = \pi * \text{radius}^2$. Assume π (pi) to be 3.14159.**

```
import math

radius = float(input("Enter the radius of the circle: "))
area = math.pi * radius ** 2
```

```
print(f"The area of the circle is: {area:.2f}")
```

Time Converter

Problem: Write a program that reads a time duration in minutes from the user and converts it to hours and minutes.

#For example, 130 minutes should be displayed as "2 hours and 10 minutes".

```
minutes = int(input("Enter the time duration in minutes: "))  
hours = minutes // 60  
remaining_minutes = minutes % 60  
print(f"{minutes} minutes is equivalent to {hours} hours and  
{remaining_minutes} minutes.")
```

Reading Multiple Inputs

Problem: Build a program that takes the user's name, age,

#and favorite color as input, and then prints a summary of the information.

```
name = input("Enter your name: ")  
age = int(input("Enter your age: "))  
favorite_color = input("Enter your favorite color: ")  
  
print(f"Name: {name}")  
print(f"Age: {age}")  
print(f"Favorite Color: {favorite_color}")
```

Leap Year Checker

Problem: Write a program that reads a year from the user and determines whether

#it's a leap year or not. A leap year is divisible by 4,

#except for years that are both divisible by 100 and not divisible by 400.

```
year = int(input("Enter a year: "))
```

```
is_leap_year = (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0)
```

```
if is_leap_year:
```

```
    print(f"{year} is a leap year.")
```

```
else:
```

```
    print(f"{year} is not a leap year.")
```

Write a program to find out the area of a triangle using heron's formula

$s = (a+b+c)/2$

$area = \sqrt{s(s-a)(s-b)(s-c)}$

```
import math
```

Input the lengths of the three sides of the triangle from the user

```
side1 = float(input("Enter the length of the first side: "))
```

```
side2 = float(input("Enter the length of the second side: "))
```

```
side3 = float(input("Enter the length of the third side: "))
```

Calculate the semi-perimeter of the triangle

```
s = (side1 + side2 + side3) / 2
```



```
# Calculate the area using Heron's formula
```

```
area = math.sqrt(s * (s - side1) * (s - side2) * (s - side3))
```

```
# Display the result
```

```
print(f"The area of the triangle is: {area: .2f}")
```