Python Programming Lab. [Batch-B3]

Assignment Submission Details

Field	Details
Student Name *	Dilip Balu Magar
Student PRN *	125M1H055
Course Name	Python Programming Lab. (MCA31PC06)
Academic Year	2025-26 (Semester-1)
Course Teacher	Prof. Prakash Ukhalkar
Assignment Name	Control Structures (If-Else, Elif, For, While)
Assignment Number	Assignment 01
Submission Date *	03-10-2025

Instructions

1. **Fill in your details** in the table above
2. **Write your code** in the provided code cells below each question
3. **Test your code** to ensure it works correctly
4. **Add comments** to explain your logic
5. **Save the notebook** before submission

Question 1: Largest of Two Numbers

Create a Python program to find the Largest of Two Numbers.

Requirements:

- Take two numbers as input from the user
- Use if-else statements to compare the numbers
- Display the largest number
- Handle the case when both numbers are equal

In [1]:
```
# Question 1: Largest of Two Numbers
# Write your code here
```

```
a=int(input("enter first number:"))
b=int(input("enter second numnber:"))

if a==b:
    print(a,"and",b ,"are equal")
elif a > b:
    print(a,"is larger than",b)
else:
    print(b,"is larger than",a)
```

```
10 is larger than 5
```

Question 2: Prime Number Check

Create a Python program to check if a number is prime or not.

Requirements:

- Take a number as input from the user
- Use control structures (loops and if-else) to check for prime
- A prime number is only divisible by 1 and itself
- Display whether the number is prime or not
- Handle edge cases (numbers less than 2)

In [18]:
```
# Question 2: Prime Number Check
# Write your code here
import math

def checkPrime(num):

    if num <2: # 0 and 1 are not prime numbers
        return False
    for i in range(2,num):
        if num%i == 0:
            return False
    return True

num=int(input("enter a number:\n"))

if checkPrime(num):
    print(num, "is prime number")
else:
    print(num,"is not prime number")
```

```
8 is not prime number
```

Question 3: Simple Calculator

Use Python to create a simple calculator that can perform basic arithmetic operations.

Requirements:

- Take two numbers as input from the user
- Ask user to choose an operation (+, -, *, /)

- Use if-elif-else statements to perform the chosen operation
- Display the result with appropriate formatting
- Handle division by zero error

In [ ]:
```
# Question 3: Simple Calculator
# Write your code here

a=int(input("enter first number\n"))
b=int(input("enter second number\n"))

print("select an operation to perform:\n")
operation=int((input("1:Addition\n2:Subtracton\n3:multiplication\n4:division\n")))

if operation==1:
    print("addition of",a,"and",b ,"is",a+b)
elif operation==2:
    print("subtraction of",a,"and",b ,"is",a-b)
elif operation==3:
    print("multiplication of",a,"and",b ,"is",a*b)
elif operation==4:
    if b==0:
        print("cannot divide by 0")
    else:
        print("division of",a,"by",b,"is",a/b)
else:
    print("choose correct operation")
```

```
select an operation to perform:

multiplication of 5 and 6 is 30
```

Question 4: Largest Element in List

Implement a Python function to find the largest element in a list.

Requirements:

- Create a function that takes a list as parameter
- Use loops to iterate through the list
- Use if statements to compare elements
- Return the largest element
- Test the function with different lists

In [3]:
```
# Question 4: Largest Element in List
# Write your code here

def findMax(num_list):
    Max=num_list[0]

    for num in num_list:
        if num>Max:
            Max=num
    return Max
```

```
n = int(input("enter no of elements you want to insert in list"))
num_list=[]
for i in range(n):
    element=int(input(f"enter element {i+1}"))
    num_list.append(element)

print("list:",num_list)

ans=findMax(num_list)

print(f"maximum number is {ans}")
```

```
list: [44, 77, 88, 3, 66]
maximum number is 88
```

Question 5: Sum and Difference Calculator

Write a Python program that reads two numbers from the user, calculates their sum and difference, and prints the results with appropriate labels.

Requirements:

- Take two numbers as input from the user
- Calculate the sum of both numbers
- Calculate the difference (first number - second number)
- Display results with clear labels
- Use proper formatting for output

In [4]:
```
# Question 5: Sum and Difference Calculator
# Write your code here


a = int(input("Enter the first number: "))
b = int(input("Enter the second number: "))

sum = a + b
diff = a - b

print(f"Sum of {a} and {b} = {sum}")
print(f"Difference ( {a} - {b} ) = {diff}")
```

```
Sum of 4 and 5 = 9
Difference ( 4 - 5 ) = -1
```

Question 6: Temperature Converter

Create a Python script that converts a Fahrenheit temperature to Celsius and vice versa, using appropriate data types and conversion formulas.

Requirements:

- Ask user to choose conversion type (F to C or C to F)
- Take temperature value as input
- Use if-else to determine which conversion to perform
- Apply correct conversion formulas:
  - Celsius = (Fahrenheit - 32) * 5/9
  - Fahrenheit = (Celsius * 9/5) + 32
- Display result with appropriate units

In [7]:
```
# Question 6: Temperature Converter
# Write your code here

print("1. Fahrenheit to Celsius")
print("2. Celsius to Fahrenheit")

choice =int( input("Enter your choice (1 or 2): "))

if choice == 1:
    f = float(input("Enter temperature in Fahrenheit: "))
    c = (f - 32) * 5/9
    print(f, "Fahrenheit =", c, "Celsius")

elif choice == 2:
    c = float(input("Enter temperature in Celsius: "))
    f = (c * 9/5) + 32
    print(c, "Celsius =", f, "Fahrenheit")

else:
    print("Invalid choice Please enter 1 or 2.")
```

```
1. Fahrenheit to Celsius
2. Celsius to Fahrenheit
25.0 Celsius = 77.0 Fahrenheit
```

Question 7: Number Classification

Write a Python program that takes an integer input from the user and classifies it as positive, negative, or zero using if-elif-else statements.

Requirements:

- Take an integer as input from the user
- Use if-elif-else statements to classify the number
- Display appropriate message for each case
- Ensure proper input validation

In [14]:
```
# Question 7: Number Classification
# Write your code here

num = int(input("Enter an integer: "))

if num > 0:
     print(num, "is Positive")
```

```
elif num < 0:
     print(num, "is Negative")
else:
    print("The number is Zero")
```

```
5 is Positive
```

Question 8: Leap Year Check

Write a Python program to determine whether a given year is a leap year or not. Use conditional statements (if-else) to implement the logic.

Requirements:

- Take a year as input from the user
- Use if-else statements to check leap year conditions:
  - Year divisible by 4 AND not divisible by 100, OR
  - Year divisible by 400
- Display whether the year is a leap year or not

In [17]:
```
# Question 8: Leap Year Check
# Write your code here

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

if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
    print(f"{year} is a Leap Year")
else:
    print(f"{year} is NOT a Leap Year")
```

```
1999 is NOT a Leap Year
```

Question 9: Grade Calculation Based on Marks

Write program on Grade Calculation Based on Marks.

Requirements:

- Take student marks as input from the user
- Use if-elif-else statements to determine grades:
  - 90-100: Grade A
  - 80-89: Grade B
  - 70-79: Grade C
  - 60-69: Grade D
  - Below 60: Grade F
- Display the corresponding grade
- Validate that marks are between 0 and 100

In [18]:
```
# Question 9: Grade Calculation Based on Marks
# Write your code here

```

```
marks = int(input("Enter your marks (0-100): "))

if marks < 0 or marks > 100:
    print("Invalid input! Marks should be between 0 and 100.")
else:
    if marks >= 90:
        grade = 'A'
    elif marks >= 80:
        grade = 'B'
    elif marks >= 70:
        grade = 'C'
    elif marks >= 60:
        grade = 'D'
    else:
        grade = 'F'

    print(f"Your grade is: {grade}")
```

```
Your grade is: A
```

Question 10: Divisibility Check

Create a Python program to check if a Number is Divisible by 5 and 3.

Requirements:

- Take a number as input from the user
- Use if-elif-else statements to check divisibility:
  - Check if divisible by both 5 and 3
  - Check if divisible by 5 only
  - Check if divisible by 3 only
  - If not divisible by either
- Display appropriate messages for each case

In [19]:
```
# Question 10: Divisibility Check
# Write your code here

num = int(input("Enter a number: "))

if num % 3 == 0 and num % 5 == 0:
    print(f"{num} is divisible by both 3 and 5")
elif num % 5 == 0:
    print(f"{num} is divisible by 5 only")
elif num % 3 == 0:
    print(f"{num} is divisible by 3 only")
else:
    print(f"{num} is not divisible by 3 or 5")
```

```
15 is divisible by both 3 and 5
```

Submission Checklist

Before submitting, make sure you have completed the following:

- [ ] Filled in all personal details in the header
- [ ] Completed all 10 questions
- [ ] Added appropriate comments to your code
- [ ] Tested all programs to ensure they work correctly
- [ ] Used proper variable names and coding conventions
- [ ] Saved the notebook file (.ipynb)
- [ ] Followed file naming format as PRN_A01_PPLAB_B3.ipynb
