Artificial Intelligence

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1. Write a python program to check the given number is prime number or not.

```
num = int(input("Enter the number "))
# If given number is greater than 1
if num > 1:
    # Iterate from 2 to n // 2
    for i in range(2, (num//2)+1):
        # If num is divisible by any number between
        # 2 and n / 2, it is not prime
        if (num % i) == 0:
            print(f"{num} is not a prime number")
            break
    else:
        print(f"{num} is a prime number")
else:
    print(f"{num} is not a prime number")
```

```
Enter the number  6
6 is not a prime number
```

2. Remove all the errors from the following line of code: Mention the name of the errors also.

#import math

a = float(input("Enter the first value: "))

b = float(input("Enter the second value: "))

GM = math.sqrt(axb)

AM = (a+b)/2

hM = (2*a*c)/(a+b)

print("The GM of the values is: ",Gm)

print("The AM of the values is: ",AM)

print("The HM of the values is: ",hM

Errors And Corrections:

1. **Syntax Error:**
    - **Line**: `GM = math.sqrt(axb)`
    - **Problem:** `axb` should be `a*b` for multiplication.
    - **Fix:** Change `axb` to `a*b`.
2. **Import Error:**
    - **Line:** `#import math, We need to include library for using math.sqrt`
    - **Problem:** The `math` module is commented out.
    - **Fix:** Uncomment `import math`.
3. **NameError:**
    - **Line:** `hM = (2*a*c)/(a+b)`
    - **Problem:** Variable `c` is used but not defined.
    - **Fix:** Change `c` to `b`.
4. **NameError:**
    - **Line:** `print("The GM of the values is: ",Gm)`
    - **Problem**: Variable `Gm` should be `GM`.
    - **Fix:** Change `Gm` to `GM`.
5. **NameError:**
    - **Line:** `print("The HM of the values is: ",hM`
    - **Problem:** Missing closing parenthesis.
    - **Fix:** Add closing parenthesis.

3. Write a python program to check the given number is prime number or not.

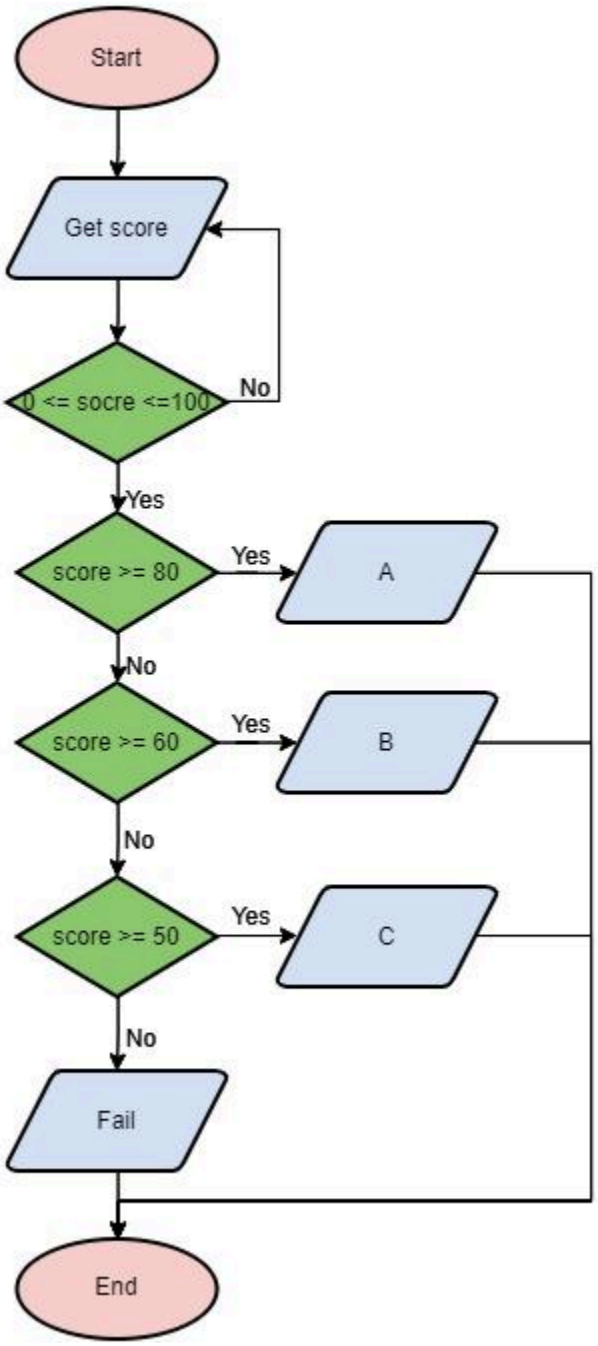
```python
# List of names
names = ["Alice", "Bob", "Qasim", "Queen", "Adam"]

print("Names starting with letter 'Q':")
for name in names:
    if 'Q' in name:
        print(name)
```

```
Names starting with letter 'Q':
Qasim
Queen
```

4. Use Paint from the start menu to create a flowchart for the if, elif, and else statements, considering the scenario of a result calculator. After that, implement the flowchart by writing the corresponding code.

Simple Grade Calculator Flow Chart By M



```python
# Input score from the user
score = float(input("Enter the score (0-100): "))

# Check if the score is within the valid range
if 0 <= score <= 100:
    # Determine the grade based on the score
    match score:
        case _ if score >= 80:
            grade = 'A'
        case _ if 60 <= score < 80:
            grade = 'B'
        case _ if 50 <= score < 60:
            grade = 'C'
        case _:
            grade = 'Fail'
else:
    grade = 'Invalid Score'

# Print the result
print(f"The result is: {grade}")
```

```
Enter the score (0-100):  65
The result is: B
```

5. Create a loop that prints all prime numbers between 1 and 50.

```python
print("Prime numbers between 1 and 50:")

for num in range(2, 51):  # Starting from 2, since 1 is not a prime number
    is_prime = True
    for i in range(2, int(num ** 0.5) + 1):
        if num % i == 0:
            is_prime = False
            break
    if is_prime:
        print(num, end=" ")
```

```
Prime numbers between 1 and 50:
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47
```

6. What is the expected output of the following code?

```
x = [0,1,2]
x.insert(0,1)
del x[1]
print(sum(x))
```

The Output is **4**

7. What will be the output of the following code snippet?

A = [1,2,3,4,5,6,7,8]

Print(a[::2])

B = {1,2,3,4,5,6}

print(B[5:3])

In first snippet it show **error** because **P** is capital and moreover **a** is not defined, Need to use **A** instead of **a**

In second it print nothing, because we need to use small value on left side in case of positive number

8. Here we have list of the List Methods: reverse(), sort(), append(), pop(), count(), len(), remove(), insert(). Implement all these methods on tuple and sets

Tuples:

- `reverse()`, `sort()`, `append()`, `pop()`, `remove()`, `insert()`: These methods are **Not supported** in tuple
- `count()`, `len()`: **Supported** in tuple, we can use it as **t.count()** and for len **len(t)** by supposing **t is a tuple**.

Sets:

- `reverse()`, `sort()`, `append()`, `count()`, `insert()`: These methods are **Not supported** in sets
- `pop()`, `len()`, `remove()`: **Supported** in set, **s.pop()**, **len(s)**, **s.remove(2)** by supposing **s** is a **set**.

9. Fill the following blanks in order to complete the code: Also Write down the output of the code.

string = "Python Programming is Fun"
# reversing words in a given string
_____
l = [ ]
for i in s:
# appending reversed words to l
l.append(i)
# printing reverse words
_____

```
string = "Python Programming is Fun"
# reversing words in a given string
s = string.split()[::-1]
l = []
for i in s:
    # appending reversed words to l
    l.append(i)
# printing reversed words
print(" ".join(l))
```

```
Fun is Programming Python
```

10. Remove all the possible errors from the following code. Also mention which type of errors in the following line of code:e the output of the following code snippet?

```
Day-number = input("Enter the number or anything:")
match day_number:
        case 1:
            prnt("Monday")
        case 2:
            print("Tuesday")
        case 3:
           print("Wednesday")
        case 4:
            print("Thursday")
        case 5:
            print("Friday")
        case 6:
            print("Saturday)
        case 7:
            print("Sunday")
        case _
            print("Invalid")
```

- The variable name should be `day_number` (no hyphens).
- The typo `prnt` should be `print`.
- The missing quote in `"Saturday"` should be fixed.
- The `case _` default case should have a colon after it.
- Proper indentation should be maintained for the `case` statements.
- The input should be converted to an integer for matching.

```python
day_number = input("Enter the number or anything:")
try:
    day_number = int(day_number)  # Convert input to integer
    match day_number:
        case 1:
            print("Monday")
        case 2:
            print("Tuesday")
        case 3:
            print("Wednesday")
        case 4:
            print("Thursday")
        case 5:
            print("Friday")
        case 6:
            print("Saturday")
        case 7:
            print("Sunday")
        case _:
            print("Invalid")
except ValueError:
    print("Invalid input: Please enter a number")
```

```
Enter the number or anything: 5
Friday
```