May 27 Python Assignment

VARIABLES, DATA TYPES, OPERATORS

1. Digit Sum Calculator

```
number = input("Enter a number: ")
ans = sum(int(i) for i in number)
print(ans)
```

2. Reverse a 3-digit Number

```
num= input("Enter a number:")
rev= num[::-1]
print(rev)
```

3. Unit Converter

```
meter= int(input("Enter Length- "))
cm=meter*100
feet= meter* 3.28084
inches= meter* 39.3701

print(f"Centimeter: {cm}")
print(f"Feet: {feet}")
print(f"Inches: {inches}")
```

4. Percentage Calculator

```
subjects= ["English", "Data Science", "Arabic", "Social Studies", "Physics"]
marks= []
tt=0
for i in subjects:
    mark= int(input(f"Enter marks for {i}: "))
    marks.append(mark)
    tt+= mark
```

```
avg = tt/len(subjects)
percentage = (tt/(100 * len(subjects)))*100
print(f"Total: {tt}")
print(f"Average marks: {avg}")
print(f"Percentage: {percentage}%")

if percentage >= 90:
    print("Grade: A")
elif percentage >= 75:
    print("Grade: B")
elif percentage >= 60:
    print("Grade: C")
elif percentage >= 50:
    print("Grade: D")
else:
    print("Grade: F")
```

CONDITIONALS

5. Leap Year Checker

```
year = int(input("Enter a year: "))
if (year %4==0 and year %100!= 0) or (year %400== 0):
    print("leap year")
else:
    print("not a leap year")
```

6. Simple Calculator

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

if a == '+':
    ans = num1 + num2
elif a == '-':
    ans = num1 - num2
elif a == '*':
    ans = num1 * num2
```

```
elif a == '/':
   ans = num1 / num2
print(f"ans: {ans}")
```

7. Triangle Validator

```
a1 = int(input("Enter first side: "))
a2 = int(input("Enter second side: "))
a3 = int(input("Enter third side: "))

if a1 + a2 > a3 and a1 + a3 > a2 and a2 + a3 > a1:
   print("Valid triangle")
else:
   print("Not a valid triangle")
```

8. Bill Splitter with Tip

```
total = float(input("Enter total bill amount: "))
peep = int(input("Enter number of people: "))
tip = float(input("Enter tip percentage (0-100): "))

res = total * (1 + tip/100)
per_person = res / peep
print(f"Each person should pay: {per_person:.2f}")
```

LOOPS

9. Find All Prime Numbers Between 1 and 100

```
for num in range(2, 101):
   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=" ")
```

10. Palindrome Checker

```
inp = input("Enter a string: ").lower()
if inp == inp[::-1]:
    print("It's a palindrome")
else:
    print("It's not a palindrome")
```

11. Fibonacci Series (First N Terms)

```
n = int(input("Enter number of terms: "))
a,b = 0, 1
for _ in range(n):
    print(a, end=", ")
    a, b = b, a + b
```

12. Multiplication Table (User Input)

```
num = int(input("Enter a number: "))
for i in range(1, 11):
    print(f"{num} × {i} = {num * i}")
```

13. Number Guessing Game

```
import random
target = random.randint(1, 100)
print("Guess a number between 1 and 100")
while True:
    guess = int(input("Your guess: "))
    if guess == target:
        print(f"You guessed the right number")
        break
    elif guess < target:
        print("Too low")
    else:
        print("Too high")
```

14. ATM Machine Simulation

```
balance = 10000
while True:
    print("1. Deposit")
    print("2. Withdraw")
    print("3. Check Balance")
    print("4. Exit")
    choice = input("Enter your choice: ")
    if choice == '1':
        amount = float(input("Enter deposit amount: "))
        balance += amount
        print(f"New balance: {balance}")
    elif choice == '2':
        amount = float(input("Enter withdrawal amount: "))
        if amount > balance:
            print("Insufficient balance")
        else:
            balance -= amount
            print(f"Remaining balance: {balance}")
    elif choice == '3':
        print(f"Current balance: {balance}")
    elif choice == '4':
        break
    else:
        print("Invalid choice")
```

15. Password Strength Checker

```
import re
password = input("Enter a password: ")
number = any(char.isdigit() for char in password)
upper = any(char.isupper() for char in password)
symbol = bool(re.search(r'[!@#$%^&*(),.?":{}|<>]', password))

if len(password) >= 8 and number and upper and symbol:
    print("Password is strong")
else:
```

```
    print("Password is weak. It should:")
    if len(password) < 8:
        print("- Be at least 8 characters long")
    if not number:
        print("- Contain at least one number")
    if not upper:
        print("- Contain at least one uppercase letter")
    if not symbol:
        print("- Contain at least one special character")
```

16. Find GCD (Greatest Common Divisor)

```
def gcd(a, b):
    while b:
        a,b = b,a%b
    return a
num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))
result = gcd(num1, num2)
print(f"GCD of {num1} and {num2} is {result}")
```