Assignment No.01

Python

**Question No 1**

Write a python program to assigning grades(A,B,C) based on marks obtained by a student

if the percentage is above 90, assign grades A

If the percentage is above 75, assign grades B

If the percentage is above 65, assign grades C

**Program No.1**

def marksheet\_grade(obtained\_marks):

percentage = (obtained\_marks / 100) \* 100

if percentage > 90:

return 'A'

elif percentage > 75:

return 'B'

elif percentage > 65:

return 'C'

else:

return 'Below C'

# Taking input for marks

marks\_obtained = float(input("Enter the marks obtained: "))

grade = marksheet\_grade(marks\_obtained)

print("The grade is: " + grade)

**Question no. 2**

Write a program to check if the number entered by user is positive and negative.

**Program No. 2**

number = float(input("Enter a number: "))

if number > 0:

print("The number is positive")

elif number < 0:

print("The number is negative”)

else:

print("The number is zero")

**Question no. 3**

Write a program to check if the number entered by user is even or odd?

**Program No. 3**

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

if number % 2 == 0:

print("The number is even.")

else:

print("The number is odd.")

**Question no. 4**

Write a program to check if the number entered by user is prime or not?

**Program No.4**

def is\_prime(num):

if num < 2:

return False

for i in range(2, int(num\*\*0.5) + 1):

if num % i == 0:

return False

return True

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

if is\_prime(number):

print(f"{number} is a prime number.")

else:

print(f"{number} is not a prime number.")

**Question no. 5**

Write a program to print hello if number is enters a number that us divisible by 7

**Program 5**

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

if number % 7 == 0:

print("Hello")

else:

print("Number is not divisible by 7.")

**Question no. 6**

#write a program to print lowest number from the two values provided by the user?

**Program 6**

number1 = int(input("Enter the first number: "))

number2 = int(input("Enter the second number: "))

if number1 < number2:

print("The lowest number is: " + str(number1))

else:

print("The lowest number is: " + str(number2))

**Question no. 7**

#write a program to check if the character entered by user is vowel or consonant

**Program 7**

char = input("Enter the character: ")

char = char.lower()

if char.isalpha() and len(char) == 1:

if char in 'aeiou':

print(char + " is a vowel.")

else:

print(char + " is a consonant.")

else:

print("Please enter a single alphabet character.")

**Question no. 8**

write the program that takes the dimensions (length of sides) of triangle to identify if the triangle is right triangle.

**Program 8**

side1 = float(input("Enter the length of side 1: "))

side2 = float(input("Enter the length of side 2: "))

side3 = float(input("Enter the length of side 3: "))

sides = [side1, side2, side3]

sides.sort()

if sides[0]\*\*2 + sides[1]\*\*2 == sides[2]\*\*2:

print("It is a right-angled triangle.")

else:

print("It is not a right-angled triangle.")

**Question no. 9**

#write a program that solve quadratic equation and print the output only if the roots are real

**Program 9**

import math

a = float(input("Enter the coefficient a: "))

b = float(input("Enter the coefficient b: "))

c = float(input("Enter the coefficient c: "))

discriminant = b\*\*2 - 4\*a\*c

if discriminant >= 0:

root1 = (-b + math.sqrt(discriminant)) / (2\*a)

root2 = (-b - math.sqrt(discriminant)) / (2\*a)

print(f"The roots of the quadratic equation are real:")

print(f"Root 1: {root1}")

print(f"Root 2: {root2}")

else:

print("The roots are complex and not real.")

**Question no. 10**

#write a program that displays .Kamran Akmal on output, if score>30, Shoaib Akhtar if 20< score<30, and Shahid Afridi if 10< score<20

**Program 10**

score = int(input("Enter the score: "))

if score > 30:

print(".Kamran Akmal")

elif 20 < score <= 30:

print("Shoaib Akhtar")

elif 10 < score <= 20:

print("Shahid Afridi")

else:

print("Score is below 10.")

**Question no. 11**

#write a program that takes password from user as input, validate the program on the following criteria: password length between 7 to 15 character which contain at least one numeric digit and special character is acceptable

**Program 11**

import re

def validate\_password(password):

if 7 <= len(password) <= 15:

if re.search(r'\d', password):

if re.search(r'[!@#$%^&\*()\_+{}\[\]:;<>,.?~\\/-]', password):

return True

else:

print("Password must contain at least one special character.")

else:

print("Password must contain at least one numeric digit.")

else:

print("Password length must be between 7 and 15 characters.")

return False

password = input("Enter your password: ")

# Validating the password

if validate\_password(password):

print("Password is valid.")

else:

print("Password is invalid.")

**Question no. 12**

#write a program to check if user has entered an upper\_case character or lower-case character(use 'ord' function and ASCII codes).

**Program 12**

character = input("Enter a character: ")

if len(character) == 1:

ascii\_code = ord(character)

if 65 <= ascii\_code <= 90:

print("You entered an uppercase character.")

elif 97 <= ascii\_code <= 122:

print("You entered a lowercase character.")

else:

print("You did not enter an alphabetical character.")

else:

print("Please enter only one character.")

**Question no. 13**

Write a Python program to check if a character entered by the user is an alphabet or not. If the user enters more than one character as input, the program prints some appropriate error message and exit.

**Program 13**

character = input("Enter a character: ")

if len(character) == 1 and character.isalpha():

print("You entered an alphabet character.")

else:

print("Please enter only one alphabet character.")

**Question no. 14**

Write a Python program that requests five integer values from the user. It then prints one of two things: if any of the values entered are duplicates, it prints "DUPLICATES"; otherwise, it prints "ALL UNIQUE".

**Program 14**

values = []

for i in range(5):

value = int(input(f"Enter integer value {i + 1}: "))

values.append(value)

if len(values) == len(set(values)):

print("ALL UNIQUE")

else:

print("DUPLICATES")

**Question no. 15**

Write a Python program that requests an integer value from the user. If the value is between 1 and 100 inclusive, print "OK"; otherwise, do not print anything

**Program 15**

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

if 1 <= value <= 100:

print("OK")