

### Practice week 3 (Conditional statements): Answers

[The answers given here are for demonstration purposes only.

However, student discretion is necessary]

1. Write a program that prompts the user to enter any two numbers as input and print the smallest number. In case if both numbers are equal then it should print "both are equal". Example run is here:

```
Enter the first number:4
Enter the second number:4
x and y are same

>>> %Run ex1.py

Enter the first number:3
Enter the second number:4
x is smaller

>>> %Run ex1.py

Enter the first number:5
Enter the second number:3
y is smaller

>>> |
```

Answer:

```
x = int(input("Enter the first number:"))
y = int(input("Enter the second number:"))

if x<y:
    print("x is smaller")

elif x==y:
    print("x and y are same")
else:
    print("y is smaller")
```

2. Write code that prompts the user to enter a string to check whether it is palindrome or not. Palindrome means a word, phrase, or sequence that reads the same backwards as forwards.

For example, "level" is a palindrome, while "moon" is not a palindrome.

Hint: reverse the given string and check reversed one is same as input.

Answer:

```
1 #Input a string and judge whether it is a palindrome
2 str = input("Please input a string:")
3 if (str == str[::-1]):
4     print(str+" is a palindrome.")
5 else:
6     print(str+" is not a palindrome.")
```

3. Write code that prompts the user to input any string and print the type of the given string. That is, alphabets, number, alphanumeric or others. Example run here:

```
Enter a string:asd234
alphanumeric

>>> %Run ex3.py

Enter a string:ad
alphabets

>>> %Run ex3.py

Enter a string:123
number

>>> %Run ex3.py

Enter a string:ad"@123
other
```

Answer:

```
str=input("Enter a string:")
if str.isalpha():
    print("alphabets")

elif str.isnumeric():
    print ("number")

elif str.isalnum():
    print("alphanumeric")
else:
    print("other")
```

4. The final course grade is determined by totaling the weighted mark taken from selected assessment tasks + final exam. The computation for course grade is given in the table.

**\*\*Table 2: Grade calculation for CT60A0203**

Scores / Points in %	Grade
0 to 49	0
50 to 59	1
60 to 69	2
70 to 79	3
80 to 92	4
93 to 100	5

Write code that prompts the user to enter the weighed score as input and print the grade based on the computation details given in the table (see above). For example: if the weighed score is 72 then the course grade is “3”

Answer (these are for demonstration purpose only, student discretion is necessary):

```
1 score=float(input("Please input the score:"))
2 if 93<=score<=100:
3     print("The corresponding grade is:",5)
4 elif 80<=score<=92:
5     print("The corresponding grade is:",4)
6 elif 70<=score<=79:
7     print("The corresponding grade is:",3)
8 elif 60<=score<=69:
9     print("The corresponding grade is:",2)
10 elif 50<=score<=59:
11     print("The corresponding grade is:",1)
12 else:
13     print("The corresponding grade is:",0)
```

```
ex4.py ×
1 score = float(input("Enter your final score in percent: "))
2
3 if score>=93<=100:
4     print ("Grade = ",5)
5
6 elif score>79:
7     print ("Grade = ",4)
8
9 elif score>69:
10    print ("Grade = ",3)
11    |
12 elif score>=59:
13    print ("Grade = ",2)
14
15 elif score>49:
16    print ("Grade = ",1)
17
18 else:
19    print ("Grade = ",0)
20
```

5. Write code that prompts the user to enter the length of the three sides of the triangle to determine whether a triangle can be formed, and then calculate the area. The lengths of the three sides are all greater than 0. If the three sides are a, b, c, the area of the triangle can be expressed as:

$$s = \sqrt{p(p-a)(p-b)(p-c)}, \text{ where } p = (a+b+c)/2.$$

Square root operation can use the **sqrt ()** function in the math library (import math).

Answer:

```
1 import math
2 a=float(input("1st side length: "))
3 b=float(input("2nd side length: "))
4 c=float(input("3rd side length: "))
5 if a>0 and b>0 and c>0:
6     if (a+b)>c and (a+c)>b and (b+c)>a:
7         p=(a+b+c)/2
8         s=math.sqrt(p*(p-a)*(p-a)*(p-c))
9         print("The area of tringle is:", s)
10    else:
11        print("Can't form a tringle")
12 else:
13    print("Input length must be greater than 0.")
```

5. Write a program that prompts the user to accept any year as input and print whether it is a normal year or a leap year. The criterion for determining a leap year is that the year can be divisible by 4 but not divisible by 100, or it can be divisible by 400.

Answer:

```
1 year=int(input("Please input a year:"))
2 if (year%4==0 and year%100!=0) or (year%400==0):
3     print(year," is leap year.")
4 else:
5     print(year," is normal year.")
```