COMPUTER PROGRAMMING LABORATORY
Experiment # 1:
Introduction and Decision Making

QUESTIONS

1) Write a Python program to print the following texts.

- Print "Python Programming course will be funny." on one line.
- Print "Python Programming course will be funny." on two lines so that the first line ends with course
- Print the text "Python Programming course will be funny." with each word on a separate line.

2) Write a Python program to check order of the three integer items.

- Prompt three integer numbers (i.e x, y and z).
- Determine the order of the three integer items.
  - If the values are ascending or descending (x<y<z or x>y>z). The result must be True.
  - Otherwise, False.
- Store the result into a Boolean variable.
- Use the Boolean variable to print the result.

3) Write a Python program to determine day of the week of a date.

- Prompt three integer numbers (i.e m(month), d(day) and y(year)). For m use 1 for January, 2 for February, and so forth. For output write 0 for Sunday, 1 for Monday, 2 for Tuesday, and so forth.
- Determine the day of the week of a date by using the following formulas.

$$y_0 = y - (14 - m) / 12$$
$$x = y_0 + y_0/4 - y_0/100 + y_0/400$$
$$m_0 = m + 12 * ((14 - m) / 12) - 2$$
$$d_0 = (d + x + (31*m_0)/ 12) \bmod 7$$

- Use decision statements to print day of the week of a date (**Hint**: if-elif-else statement).
- Test your program with February 19, 2019.

4) Several different formats are used to represent color. For example, the primary format for LCD displays, digital cameras, and web pages, known as the RGB format, specifies the level of red (R), green (G), and blue (B) on an **integer scale from 0 to 255**. The primary format for publishing books and magazines, known as the CMYK format, specifies the level of cyan (C), magenta (M), yellow (Y), and black (K) on a **real scale from 0.0 to 1.0**.

Write a Python program that converts RGB to CMYK.

- Prompt three integer numbers (i.e r, g and b).
- Convert rgb to cmyk by using following formulas:

$$w = \max(r/255, g/255, b/255)\quad c = (w - r/255) / w\quad m = (w - g/255) / w\quad y = (w - b/255) / w\quad k = 1 - w$$

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- Print the cmyk.
- Test your program with r=75, g=0, b=130

5) Write a Python program to determine whether three integers can construct a triangle or not.

- Prompt three integer numbers (i.e a, b and c).
- Determine whether three integers can construct a triangle or not.
  - If a<b+c and b<a+c and c<b+a, the result must be True.
  - Otherwise, False.
- Store the result into a Boolean variable.
- Use the Boolean variable to print the result.

6) Write a Python program to implement following partial function. Test your program with i) x=-5, ii) x=-1, iii) x=1, iv) x=10. Read these values from the user.

$$\boldsymbol{y} = \begin{cases} \dfrac{x^3+4}{x^2}, & x < -3 \\ |x^2+3x-10|, & -3 \le x < 0 \\ x^2-4x, & 0 \le x < 4 \end{cases}$$