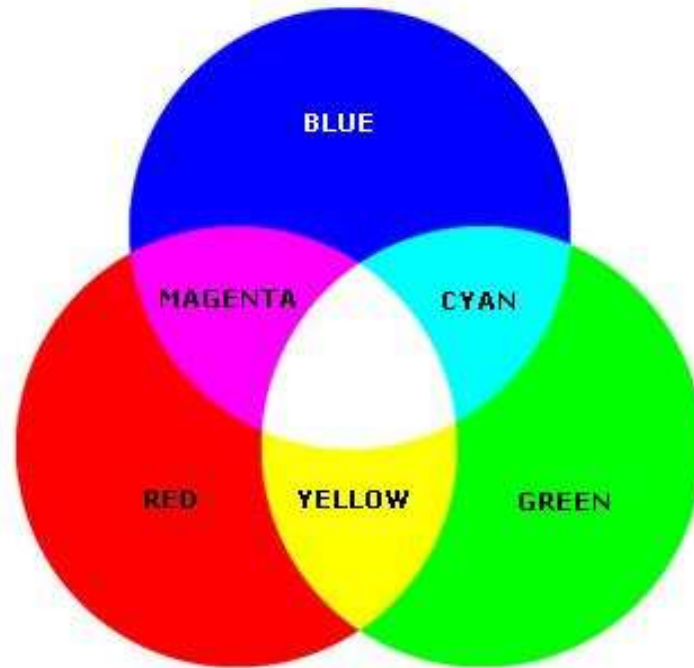


# 1. Color Mixer ★

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The RGB (red-green-blue) color model is an additive color model being used by computers to represent color. All of the colors that you see in your monitor can be represented by specifying how much red, green, and blue are there. Other colors can be formed just by combining these three basic colors.

- (1) Yellow can be formed by combining red and green.
- (2) Magenta can be formed by combining blue and red.
- (3) Cyan can be formed by combining green and blue.

Your task is to write a program that accepts the names of two different basic colors (red, blue or green). The program should then output the resulting color if the two given colors are mixed together. Assume that the user will always input the colors in small letters.

## 2. Simple Calculator ★

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Your task is to implement a simple calculator that is able to perform the four basic operations: addition, subtraction, multiplication, and division.

The program should first ask the user for the first operand. The operand can be an integer or a decimal. For example, 5, -6 and 8.5 are all valid operands.

The program should next ask for the operation that the user wishes to perform. The operation can either be **+** for addition, **-** for subtraction, **x** for multiplication, and **/** for division. Note that for this calculator, **x** is the symbol for multiplication and not **\***.

Next, the program should accept the second operand. Like the first operand, it can be an integer or a decimal.

The program should then compute for the result of the operation and display the result to the user. Note that if the user tries to divide something by zero, the program should display Undefined.

Here are sample runs of the program:

```
Input the first number: 10
Input the operation: x
Input the second number: 20
The answer is: 200
```

```
Input the first number: 1.5
Input the operation: -
Input the second number: 0.25
The answer is: 0.25
```

### 3. Eidolon Summoning ★★

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Eidolons are mythical creatures that visit the land of the living. Each Eidolon has the ability to grant a wish on certain aspects or realms of human lives. Humans are eager to predict the year a specific Eidolon will appear to prepare for its coming. Your task is to write a program that teaches about the different years of visitation from various Eidolons. You must carefully look at the following chart to determine your program behavior:

Name of Eidolon	Years of Visitation	Blessing
Phoenix	Every 6 years	Health
Bahamut	Every 5th decade	Wisdom
Leviathan	Every 3rd visit of Phoenix for the century	Peace

We will assume that Phoenix visits in years 6, 12, 18, and so on. Bahamut visits in years 50, 100, 150, and so on. Leviathan visits in year 18, because it is the third visit of the Phoenix for that century (1-100). Its next visit will be in year 114.

Your program should accept the current year (assume that the user inputs a year from 1 to 9999). For every Eidolon that will visit in that year, your program should output a message in the following format:

**<Eidolon name> has come forth! - Wish for <blessing>!**

For example, if the year is 1050, the output of your program should be:

```
Phoenix has come forth! - Wish for health!
Bahamut has come forth! - Wish for wisdom!
```

## 4. Computing for the Tax ★★

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Write a program that computes for the income tax of an employee based on the following rules:

- a. Base tax of 250.00 for the first 3,000.00 of the taxable income
- b. 5% of the taxable income for the next 2,000.00.
- c. 9% of the taxable income for the next 5,000.00.
- d. 15% of the taxable income for the remaining amount.

Here are some examples to help you:

Taxable Income	Income Tax	Computation
2500	250.0	$250.0 \text{ (base)} = 250.0$
5000	350.0	$250.0 \text{ (base)} + 100.0 = 350.0$
12500	1175.0	$250.0 \text{ (base)} + 100.0 + 450.0 + 375.0 = 1175.0$

## 5. Phone Bill Calculator ★★★

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Moon Telecommunications, Inc. has asked you to write a program to help their subscribers compute their phone bills. They will be releasing this as an app for Android and iOS. They want a prototype from you which includes the following functionalities:

(1) Ask the user to input the 12 digit phone number that he or she wants to call, along with the start time of the call (in 24-hour format HHMM) and the end time of the call (in 24-hour format HHMM).

(2) Based on the duration of a call, calculate the bill based on the following rates:

IDD Call	P16.50 per minute
Local Call (to other network subscriber)	P10.00 for the first 2 minutes and additional P1.50 for every additional minute
Local Call (to Moon subscriber)	P8.00 for the first 2 minutes and additional P1.00 for every additional minute

(3) Display the appropriate bill to the user.

Note that the first 2 digits in the phone number represents the area code. The area code of the Philippines is 63. This means that if the first 2 digits of the phone number is not 63, it is an IDD call. The next 3 digits represents the network code, which tells if the number belongs to a Moon Telecom subscriber or not. If these 3 digits are any of the following: 905, 906, 916, or 918, then it means that it belongs to a Moon Telecom subscriber.

For example, given this 12-digit number, since the first 2 digits are 63, we know that it is a local call, and since the next 3 digits is 906, we know that the call is to a Moon Telecom subscriber.

6 3 9 1 6 9 2 9 9 2 4 3  
Area Code Network Code Actual Number

For this problem, assume that the start time and end time of the call always fall within a single day (no calls that span overnight). Your task is to implement the said prototype functionalities by writing a simple Python program.

## 6. Item Crafting ★★★

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In an online game called *League of Legends*, one of the items that can be acquired is called the Tiamat. To be able to craft this item, you need to have one (1) pickaxe, one (1) long sword, and two (2) rejuvenation beads.



Write a program that will ask the user how many pickaxes, long swords, and rejuvenation beads he has in his inventory. The program should output the following:

- (1) The maximum possible number of Tiamat items that he can craft, and
- (2) The remaining number of items of each type after crafting the Tiamat items.

For this problem, assume that the user's inventory has unlimited capacity (even if you can only carry 6 items at once in the actual game). Refer to the following sample run:

```
Number of pickaxes: 4
Number of long swords: 5
Number of rejuvenation beads: 18

Maximum number of Tiamat items you can craft: 4
Remaining pickaxes: 0
Remaining long swords: 1
Remaining rejuvenation beads: 10
```