1. A leap year is a calendar year containing an additional day added to keep the calendar year synchronized with the astronomical or seasonal year. In the Gregorian calendar, each leap year has 366 days instead of 365, by extending February to 29 days rather than the common 28. These extra days occur in years which are multiples of four (with the exception of centennial years not divisible by 400). Write a Python program, which asks for a year and calculates, if this year is a leap year or not.
2. You go on a wonderful holiday (perhaps to jail, if you don't like happy exercises) leaving on day number 3 (a Wednesday). You return home after 137 sleeps. Write a general version of the program which asks for the starting day number, and the length of your stay, and it will tell you the name of day of the week you will return on.
3. Write a Python program which iterates the integers from 1 to 50. For multiples of three print "Fizz" instead of the number and for the multiples of five print "Buzz". For numbers which are multiples of both three and five print "FizzBuzz".
   Sample Output :
   fizzbuzz
   1
   2
   fizz
   4
   buzz
4. Body mass index (BMI) is a value derived from the mass (weight) and height of a person. The BMI is defined as the body mass divided by the square of the body height, and is universally expressed in units of kg/m2, resulting from mass in kilograms and height in metres. $ BMI = \frac{m}{l^{2}}$ Write a program, which asks for the length and the weight of a person and returns an evaluation string according to the following table:

Category	BMI (kg/m²)		BMI Prime	
	from	to	from	to
Very severely underweight		15		0.60
Severely underweight	15	16	0.60	0.64
Underweight	16	18.5	0.64	0.74
Normal (healthy weight)	18.5	25	0.74	1.0
Overweight	25	30	1.0	1.2
Obese Class I (Moderately obese)	30	35	1.2	1.4
Obese Class II (Severely obese)	35	40	1.4	1.6
Obese Class III (Very severely obese)	40	45	1.6	1.8
Obese Class IV (Morbidly Obese)	45	50	1.8	2
Obese Class V (Super Obese)	50	60	2	2.4
Obese Class VI (Hyper Obese)	60		2.4	

5. Using knowledge of looping generate all even numbers from the list totals in the same order they are received. Do not print any numbers that come after 237 in the sequence.

Totals= [

951, 402, 984, 651, 360, 69, 408, 319, 601, 485, 980, 507, 725, 547, 544,

615, 83, 165, 141, 501, 263, 617, 865, 575, 219, 390, 984, 592, 236, 105, 942, 941,

386, 462, 47, 418, 907, 344, 236, 375, 823, 566, 597, 978, 328, 615, 953, 345,

399, 162, 758, 219, 918, 237, 412, 566, 826, 248, 866, 950, 626, 949, 687, 217,

815, 67, 104, 58, 512, 24, 892, 894, 767, 553, 81, 379, 843, 831, 445, 742, 717,

958, 609, 842, 451, 688, 753, 854, 685, 93, 857, 440, 380, 126, 721, 328, 753, 470,

743, 527

]

6. Write a Python program to check the validity of password input by user
Validation :

At least 1 letter between [a-z] and 1 letter between [A-Z].

At least 1 number between [0-9].

At least 1 character from [$#@].

Minimum length 6 characters.

Maximum length 16 characters.

7. Write a program to prompt for a score between 0.0 and 1.0. If the core is out of range print an error. If the score is between 0.0 and 1.0, print a grade using the following table:

Score Grade

>= 0.9 A

>= 0.8 B

>= 0.7 C

>= 0.6 D

< 0.6 F

8. Companies often invest in training their employees to raise their productivity. Economists sometimes wonder why companies spend this money when this incentivizes other companies to

hire their employees away with higher salaries since employees gain human capital from training?

Let's say that it costs a company 25,000 dollars to teach their employees Python, but it raises their output by 2,500 per month. How many months would an employee need to stay for the company to find it profitable to pay for their employees to learn Python if their discount rate is r = 0.01?