

# Programming Assignment 02

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## Conditions

### Instructions

This programming assignment consists of **3 programming exercises**.

You have to:

1. **download** the empty Python files on NYU Classes
2. **edit** them according to the assignment
3. **verify** on your computer that it works
4. **upload** them back on NYU Classes (**do not change the filenames**)

## Exercise 1 - Odd or even

Write a program (in the file `exercise1.py`) that does the following:

1. asks the user to **input a number** (type: `int`)
2. then, **prints** `odd` or `even` depending on the **number's parity**

Example 1 (the user input is in **red**, the printed output is in **blue**):

```
Input a number: 6
even
```

Example 2 (the user input is in **red**, the printed output is in **blue**):

```
Input a number: 13
odd
```

## Exercise 2 - Software retails

A software company sells a **package** that retails for **\$49.99**. Quantity **discounts** are given according to the following table:

| Quantity     | Discount    |
|--------------|-------------|
| Less than 10 | no discount |
| 10 - 19      | 10%         |
| 20 - 49      | 20%         |
| 50 - 99      | 30%         |
| 100 or more  | 40%         |

Write a program (in the file `exercise2.py`) that does the following:

1. asks the user to **input the number of packages** he wants to buy (type: `int`)
2. then, **prints the total amount of the purchase after discount**

*NOTE:* the total amount should keep **two decimal places**

Sample examples (the user input is in **red**, the printed output is in **blue**):

```
Number of packages: 10
449.91
```

```
Number of packages: 100
2999.40
```

## Exercise 3 - Leap year and soccer

Write a program (in the file `exercise3.py`) that does the following (in the specified order):

1. asks the user to **input a year** (type: `int`)
2. **prints the message** `Leap year` or `Not leap year` on a first line
3. then, **only** if applicable, **prints the message** `World Cup year` or `Euro Cup year` on a second line

### Definitions

Definition of **leap year** (also known as an intercalary year or bissextile year):

- Every year that is **exactly divisible by 4** is a **leap year**, ...
  - **except** for years that are **exactly divisible by 100**, ...
  - but these **centurial years** are **leap years** if they are **exactly divisible by 400**

For example, the years 1700, 1800, and 1900 were not leap years, but the years 1600 and 2000 were.

Definition of **World Cup year** (FIFA Soccer World Cup):

- Happens **every 4 years**
- Starting **from 1950**

For example, the years 1950, 1982, or 2018 are World Cup years, but the years 1946 or 2020 are not.

Definition of **Euro Cup year** (UEFA Soccer European Championship):

- Happens **every 4 years**
- Starting **from 1960**
- **Exception:** due to COVID-19, the **2020 edition** will happen in **2021**

For example, the years 1960, 1984, 2016 or 2021 are Euro Cup years, but the years 1956, 2018 or 2020 are not.

Sample examples (the user input is in **red**, the printed output is in **blue**):

Year: **2000**  
Leap year  
Euro Cup year

Year: **1956**  
Leap year

Year: **2018**  
Not leap year  
World Cup year

Year: **2020**  
Leap year

Year: **2021**  
Not leap year  
Euro Cup year

Year: **2017**  
Not leap year