Lab 4
Introduction to jupyter notebook

Jupyter Notebook a document made of *cells*. Each cell can contain code written in Python or explanations in plain English. You can execute code cells and view the results, e.g., numbers, messages, graphs, tables, files, etc. instantly within the notebook. Jupyter is a powerful platform for experimentation and analysis. Don't be afraid to mess around with the code & break things - you'll learn a lot by encountering and fixing errors. You can use the "Kernel > Restart & Clear Output" menu option to clear all outputs and start again from the top.

Working with cells:
To create a new cell within Jupyter, you can select "Insert > Insert Cell Below" from the menu bar or just press the "+" button on the toolbar. You can also use the keyboard shortcut Esc+B to create a new cell. Once a cell is created, click on it to select it. You can then change the cell type to code or markdown (text) using the "Cell > Cell Type" menu option. You can also use the keyboard shortcuts Esc+Y and Esc+M. Double-click a cell to edit the content within the cell. To apply your changes and run a cell, use the "Cell > Run Cells" menu option or click the "Run" button on the toolbar or just use the keyboard shortcut Shift+Enter. You can see a full list of keyboard shortcuts using the "Help > Keyboard Shortcuts" menu option.

Solve the following using jupyter notebook

1. The population of a town is 198568. Out of them 45312 are men and 35678 are women. Find the number of children in the town.

2. A shopkeeper has 2425 boxes of 24 pencils each. How many pencils do all the boxes have in all?

3. Linda bought a coat for $2265 and a saree for $2150. She gave $5000 to the shopkeeper. How much money did the shopkeeper return to her?

4. The cost of 21 TV sets is $95844. Find the cost of one TV set.

5. A factory produces 24532 bulbs in a month. What is its annual production?

6. There are 145968 bags of sugar, 236487 bags of wheat and some bags of rice in a godown. If the total number of bags in the godown is 450000, find the number of bags of rice.

7. A factory manufactured 483685 toys in three weeks. The production in first week was 146345 toys and in second week 138152 toys. Find the production in the third week.

8. The cost of a sofa set is $9372. How much will 124 such sofa sets cost?

9. There are 86 rooms in a school. 4386 students study there. Find Equal number of students sits in each room?

10. 1575 students of a school want to go Hayatabad by bus. If one bus can carry 75 students, how many buses are required to carry all the students?

11. The cost of a radio set is 1475. What is the cost of 35 such radio sets?

12. In an election, 52496 people voted for Ron, 44929 people for Jhon and 36824 people for Mike in a town. If everyone voted in the town, what is the total number of voters?

13. Maria bought 96 toys priced equally for $12960. The amount of $1015 is still left with her. Find the cost of each toy and the amount she had.

14. A travel company wants to fly a plane to the Karachi. Flying the plane costs 5000 dollars. So far, 29 people have signed up for the trip. If the company charges 200 dollars per ticket, what is the profit made by the company? Create variables for each numeric quantity and use appropriate arithmetic operations.

15. Calculate and display the sum of all the numbers divisible by 7 between 18 and 534
i.e. 21+28+35+...+525+532

16. Are your ready to perform some *Data Analysis with Python*? In this problem, we'll analyze some fictional tweets and find out whether the overall sentiment of Twitter users is happy or sad. This is a simplified version of an important real world problem called *sentiment analysis*.

Before we begin, we need a list of tweets to analyze. We're picking a small number of tweets here, but the exact same analysis can also be done for thousands, or even millions of tweets. The collection of data that we perform analysis on is often called a *dataset*.

```
tweets = [
    "Wow, what a great day today!! #sunshine",
    "I feel sad about the things going on around us. #covid19",
    "I'm really excited to learn Python with @JovianML #zerotopandas",
    "This is a really nice song. #linkinpark",
    "The python programming language is useful for data science",
    "Why do bad things happen to me?",
    "Apple announces the release of the new iPhone 12. Fans are excited.",
    "Spent my day with family!! #happy",
    "Check out my blog post on common string operations in Python. #zerotopandas",
    "Freecodecamp has great coding tutorials. #skillup"
]
```

1. How many tweets does the dataset contain?
2. Determine the number of tweets in the dataset that can be classified as happy.
3. What fraction of the total number of tweets are happy?
4. Determine the number of tweets in the dataset that can be classified as sad.
5. What fraction of the total number of tweets are sad?

6. Calculate the sentiment score, which is defined as the difference between the fraction of happy tweets and the fraction of sad tweets.
7. Display whether the overall sentiment of the given dataset of tweets is happy or sad, using the sentiment score.
8. What is the fraction of tweets that are neutral i.e. neither happy nor sad.