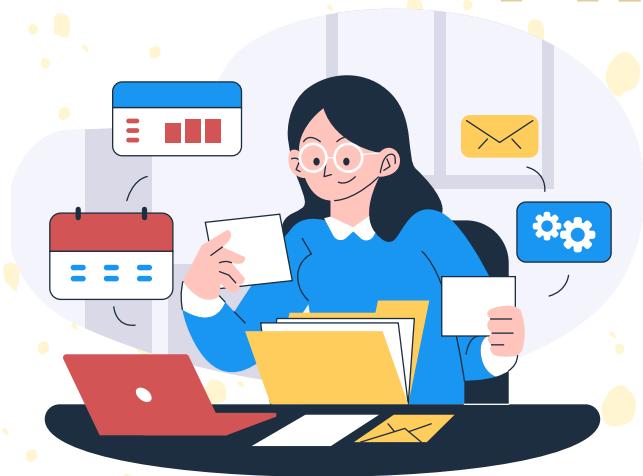




PYTHON PROJECTS





Level 1 Projects

➤ Restaurant Billing System:

Write a Python program to calculate the total bill for a customer. The program should ask for the cost of individual items, apply a 10% service charge, and calculate the total.



➤ Simple ATM Machine:

Create a Python program that simulates an ATM machine with basic functionalities. The program should allow the user to check their account balance, deposit money, or withdraw funds. It should start with an initial balance of 1000. The user can perform these actions in a loop until they choose to exit. When attempting to withdraw money, the program should ensure that the user does not exceed the available balance and display an appropriate message in case of insufficient funds.

➤ Grocery Store Inventory:

Create a Python program that represents a grocery store inventory using a dictionary, where the keys are the names of items and the values are their quantities. The program should allow the user to perform the following actions: update the quantity of an existing item, add a new item to the inventory with a specified quantity, and remove an item from the inventory. The user should be prompted for their desired action, and the program should handle invalid input gracefully. This will help in understanding dictionary manipulation and user interaction in Python.

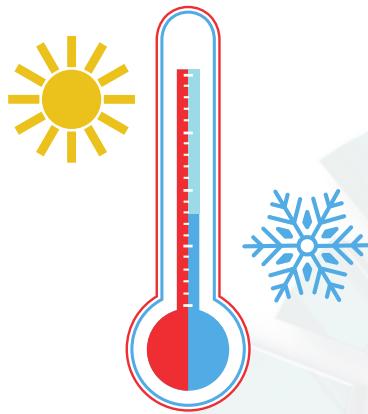




Level 1 Projects

➤ Library Book Tracker:

Develop a Python program to manage a library system with options to add, remove, and search for books.



➤ Temperature Converter with History:

Create a Python program that functions as a temperature converter, allowing the user to convert temperatures between Celsius and Fahrenheit. The program should store and display the last five conversions, showing both the input value and the result. The user should be able to choose the direction of conversion (Celsius to Fahrenheit or Fahrenheit to Celsius), and the program should maintain a history of the last five conversions, displaying the most recent ones at the end of each conversion.

➤ Number Guessing Game:

Create a Python program where the computer randomly selects a number between 1 and 100, and the user has to guess the number. After each guess, the program should provide feedback such as 'Too High' if the guess is greater than the number, or 'Too Low' if the guess is smaller. The program should continue prompting the user for guesses until the correct number is guessed, and then it should congratulate the user for finding the number.





Level 1 Projects

➤ Basic Calculator with History:

Create a Python program that implements a calculator capable of performing addition, subtraction, multiplication, and division. The program should allow the user to input two numbers and select the desired operation. After each calculation, the program should display the result and store the last three calculations. If more than three calculations are performed, the oldest one should be removed to make room for the new one.



➤ Student Grade Calculator:

Create a Python program that takes the marks for 5 subjects as input from the user, calculates the total marks, the average score, and assigns a grade based on the average. The grade can be determined based on typical thresholds, such as:

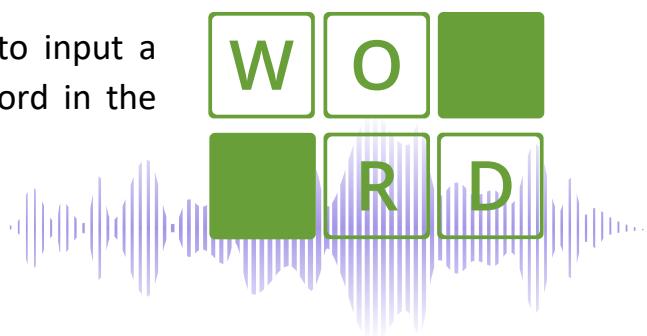
- A: Average ≥ 90
- B: Average ≥ 75
- C: Average ≥ 60
- D: Average ≥ 50
- F: Average < 50

The program should display the total marks, average, and corresponding grade to the user.



➤ Word Frequency Converter:

Create a Python program that allows the user to input a sentence, then counts the frequency of each word in the sentence.

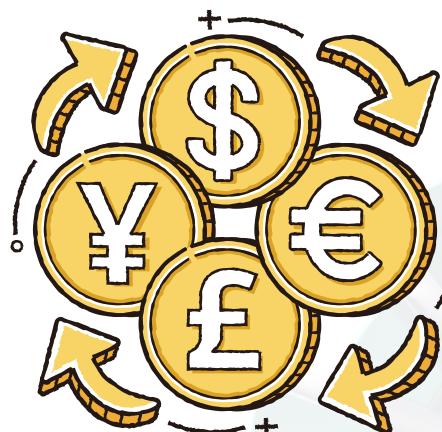




Level 1 Projects

➤ Simple Quiz Application:

Create a Python quiz program with 5 questions and multiple-choice answers. Display the score at the end.



➤ Currency Converter:

Create a Python program that converts currency from USD (United States Dollar) to INR (Indian Rupee), EUR (Euro), and GBP (British Pound) based on provided exchange rates. The program should prompt the user to input the amount in USD and the exchange rates for INR, EUR, and GBP. It will then calculate and display the converted amounts for each of these currencies. The user should also be able to input new exchange rates if desired.

➤ Event Ticket System:

Create a Python program to sell tickets for an event where the user can choose the type of ticket (VIP, Regular, or Economy) and specify the number of tickets they want to purchase. The program should display the price for each ticket type, calculate the total cost based on the number of tickets, and then prompt the user to confirm the purchase. The ticket prices can be predefined, for example:

- VIP: \$100
- Regular: \$50
- Economy: \$20

After the user selects the ticket type and number, the program should display the total price for the tickets and confirm the transaction.





Level 1 Projects

➤ To-Do List Manager:

Create a Python program that implements a simple to-do list manager. The program should allow the user to perform the following actions:

- **Add a task:** Add a new task to the to-do list.
- **Remove a task:** Remove a task from the to-do list by specifying its index or name.
- **Mark a task as done:** Mark a specific task as completed.
- **Display pending tasks:** Show all tasks that have not yet been marked as done.

The program should display a menu with these options, and the user can choose which action to perform. It should store the tasks in a list, and each task can be represented by a dictionary with properties like task name and whether it's done or not.



➤ Age Calculator:

Calculate a person's age based on their date of birth.



Level 2 Projects

➤ Online Shopping Cart:

Simulate a shopping cart where users can add, remove, and view items.



➤ File Content Reverser:

Take a text file as input and create a new file with its contents reversed.

➤ Employee Payroll System:

Create a Python program that calculates an employee's salary after accounting for deductions like tax and adding bonuses. The program should allow the user to input the employee's base salary, tax percentage, and any bonuses. It should then calculate the amount deducted for taxes, add the bonus to the salary, and display the final salary after deductions and bonuses. The tax can be calculated as a percentage of the base salary, and the final salary will be the sum of the base salary minus tax plus any bonus.



➤ Bank Loan Calculator:

Calculate monthly payments for a loan based on principal, rate, and time.



Level 2 Projects

➤ Simple Encryption and Decryption:

Implement a basic Caesar cipher to encrypt and decrypt messages.



➤ Movie Ticket Booking System:

Write a program to book movie tickets by selecting movie, time, and number of seats. Prints the tickets with price.

➤ BMI Calculator:

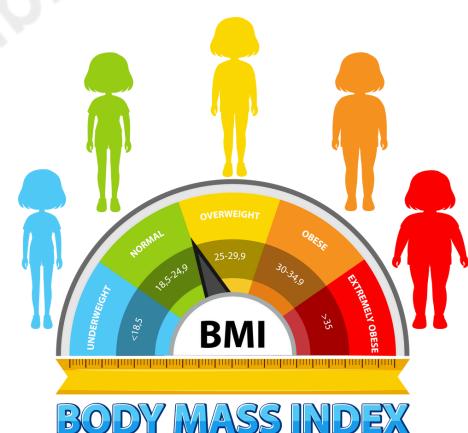
Create a Python program that calculates the Body Mass Index (BMI) based on the user's height and weight. The BMI can be calculated using the following formula:

$$BMI = \frac{\text{weight (kg)}}{\text{height (m)}^2}$$

The program should prompt the user to input their weight and height, calculate the BMI using the above formula, and then categorize the BMI according to standard ranges:

- Underweight: $BMI < 18.5$
- Normal weight: $18.5 \leq BMI < 24.9$
- Overweight: $25 \leq BMI < 29.9$
- Obesity: $BMI \geq 30$

The program should then display the BMI value along with the corresponding category.





Level 2 Projects

➤ Dice Rolling Simulator:

Simulate rolling two dice and print the results.



➤ Email Parser:

Validate if a given string is a valid email address.

Extract the username and domain from an email address.

➤ Ticket Fare Calculator:

Create a Python program that calculates the fare for a journey based on the distance traveled and the type of passenger (adult, child, or senior). The program should prompt the user to input the distance traveled (in kilometers) and the type of passenger. Based on this input, the fare will be calculated using predefined rates for each type of passenger. For example:

- Adult: \$5 per kilometer
- Child: \$3 per kilometer
- Senior: \$4 per kilometer

The program should apply the appropriate fare rate based on the passenger type and distance travelled, then display the total fare. Additionally, the program could provide a discount for seniors, if applicable.





Level 2 Projects

➤ Digital Dice Game:

Create a Python program that simulates rolling a digital dice. The program should allow the user to roll the dice, and based on the outcome, track the number of wins and losses.

For example:

1. A win is recorded if the dice roll matches a pre-determined "winning number" (for example, 6).
2. A loss is recorded if the dice roll is any other number.

The program should continue asking the user if they want to roll again, and it should keep track of the total wins and losses. After the user decides to stop, the program should display the final score, showing the number of wins and losses.



➤ Shopping Discount System:

Apply Different Discount Percentages Based on Purchase Amount

Create a Python program that applies different discount percentages based on the total purchase amount. The program should prompt the user for the total purchase amount and then apply the following discount rules:

1. Purchase amount < \$50: No discount.
2. Purchase amount between \$50 and \$100: 10% discount.
3. Purchase amount between \$100 and \$200: 15% discount.
4. Purchase amount > \$200: 20% discount.

The program should calculate the discount based on the total and display the final amount after applying the discount.



Generate a Simple Invoice for a Customer Based on Items Purchased, Quantities, and Prices

Create a Python program that generates a simple invoice for a customer. The program should allow the user to input the name, price, and quantity of items purchased. It should then calculate the total cost for each item (price × quantity), display the itemized list, and include a final total for the invoice. If applicable, it should apply the discount from the previous section to the total cost and display the final amount.

Here's a possible structure for the invoice:

1. Item name
2. Item price
3. Item quantity
4. Total for that item
5. Subtotal of all items
6. Discount applied (if any)
7. Final amount to be paid



Thank You



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