**Project Name**: "Hangman Challenge”

**Description:**

This project involves developing an interactive Hangman game using Python. The game challenges players to guess a randomly selected word by suggesting letters within a limited number of attempts. The main objective of this project is to demonstrate the implementation of basic programming concepts, such as loops, conditionals, string handling, and user interaction in Python. Advanced features, including a graphical interface and difficulty levels, are optional extensions of the project.

**Features:**

1. Display Current Progress:

Shows guessed and unguessed letters (e.g., \_ \_ T \_ O N) after each guess.

2. Input Validation:

Checks for valid inputs, such as single alphabetical characters that haven’t been guessed before.

3.Game States:

Game ends with either a win (word guessed) or loss (hangman figure fully drawn).

4. Replay Option:

Allows the player to restart or quit after a game session.

**Technologies Used:**

**Programming Language:** Python 3

**Development Tools:** Visual Studio Code, Jupyter Notebook, or any Python IDE

**Libraries:** Python Standard Library, random for word selection, tkinter (optional, for GUI)

**Learning Objectives:**

1. Develop a basic console-based Hangman game using Python.

2. Implement game logic to handle player guesses and display progress.

3. Provide a graphical user interface (optional) using the tkinter library for enhanced user experience.

4. Apply programming concepts such as loops, conditionals, functions, and data handling.

**Console-Based Code:**

Here’s the console-based version of the game:

import random

# Predefined list of words

words = ['python', 'hangman', 'programming', 'computer', 'ai']

# Function to select a random word

def select\_word():

return random.choice(words).upper()

# Function to display the current progress

def display\_progress(word, guessed\_letters):

display = [letter if letter in guessed\_letters else '\_' for letter in word]

return ' '.join(display)

# Hangman game function

def hangman\_game():

word = select\_word()

guessed\_letters = ''

attempts = 6 # Number of allowed attempts

print("Welcome to Hangman!")

print(display\_progress(word, guessed\_letters))

while attempts > 0:

guess = input("Guess a letter: ").upper()

if guess in guessed\_letters:

print("You already guessed that letter.")

elif guess in word:

guessed\_letters += guess

print("Good guess!")

else:

attempts -= 1

print(f"Wrong guess! Attempts left: {attempts}")

current\_progress = display\_progress(word, guessed\_letters)

print(current\_progress)

if "\_" not in current\_progress:

print("Congratulations! You've guessed the word:", word)

break

if attempts == 0:

print("Out of attempts! The word was:", word)

# Run the game

hangman\_game()

**OUTPUT:**

You will see the following if you win the game

