# Assessment-I

## 1. Git, Git Bash & Github

a. Create a github account. Install git locally. Learn how to use git commands and what they are used for.
b. Create a demo python, c or c++ for the following programs and use git to push it remotely. Document the steps you took to do this.Documentation should be done in a markdown file using markdown language. More about it, find it in the second task.
    i. Finding the nth fibonacci number
    ii. Choose any one game below and code it:
        1. Hangman (Guess the word)
        2. Rock Paper scissor
        3. Guessing the number

    Note: Extra points will be given for doing more than one game.
c. https://www.w3schools.com/git/git_intro.asp?remote=github
d. https://www.youtube.com/watch?v=tRZGeaHPoaw
e. Follow any of these two tutorials or anything else of your choice.

## 2. Documentation using markdown

a. Learn markdown syntax and use it for writing documentation in your git repos. It is a nice way of illustrating your work.
b. https://www.markdownguide.org/getting-started/
c. https://www.youtube.com/watch?v=_PPWWRV6gbA
d. To complete this task write about yourself using markdown language. Mention your hobbies, aims, aspirations, favourite movies, food, tools ,etc. Use different markdown syntaxes to display these. Love to see your creativity.
e. This task is a small one but it will help a lot while building big and complex code. As documentation is the only source which will tell us about our code.

## 3. Graph Algorithms

a. Learn graphs and graph algorithms BFS, DFS, dijastra's shortest path algorithm, MST(Krushkal's and Prim's).
b. Take a weighted graph of 5 nodes(For risk takers: 10 nodes) and use the above algorithms to test.
c. The code should not only implement the algorithm but also should trace the graph and how each node is visited as we go along.
d. Implement the above algorithms using python, c or c++.

e. For detailed explanation refer: CLRS textbook (Bible for CS people)
f. https://www.w3schools.com/dsa/dsa_theory_graphs.php
g. https://www.youtube.com/watch?v=5hPfm_uqXmw
h. Find out some cool applications of the graph algorithms. Document two applications which are related to drones or VTOL.

Note: These assignment questions are not so difficult, please refrain from using chat gpt. Read the documentation and try to implement it. Reading documentation helps in solving more complex problems where chat gpt cannot help us.
For any issues you can message or mail me. If you have any doubts regarding the questions, please feel free to contact me.

Additional Resources:(These resources will help in future while writing complex code)(Pro tip: No need to follow only these resources feel free to explore new resources but make sure to learn these concepts)

1. Learn one IDE vscode or cursor:
    a. https://www.youtube.com/watch?v=bfvq_kTbnd8&pp=0gcJCdgAo7VqN5tD
    b. https://www.youtube.com/watch?v=ORrELERGIHs
    c. https://www.youtube.com/watch?v=3289vhOUdKA
2. Learn python:
    a. https://www.w3schools.com/python/
    b. https://www.python.org/about/gettingstarted/
    c. https://www.youtube.com/watch?v=K5KVEU3aaeQ
3. Learn bash commands:
    a. https://www.youtube.com/watch?v=BFMyUgF6I8Y
    b. https://www.youtube.com/watch?v=TPRSJbtfK4M
4. How to write clean code:
    a. https://www.youtube.com/watch?v=wSDyiEjhp8k
    b. https://github.com/jnguyen095/clean-code/blob/master/Clean.Code.A.Handbook.of.Agile.Software.Craftsmanship.pdf