Lab 0: Discussion Topics and Tips

1. Demo of Python from https://www.python.org/downloads/
    a. Downloading
    b. Installation
    c. execution using command prompt cmd
    d. execution using idle
    e. Python 3 vs python 2 (Conclude that we will be using python 3)
    f. .py file
2. Demo of Anaconda https://www.anaconda.com/products/individual
    a. Download
    b. Installation
    c. 32 bit vs 64 bit
    d. Execution of anaconda prompt
    e. Purpose of anaconda prompt (installing packages using conda command)
    f. Demo of spyder
3. Demo of Ipython Notebooks
    a. Opening Ipython Notebooks using jupyter notebook and jupyterlabs
    b. File extension .ipynb
    c. Py file vs ipynb file
    d. Why Jupyter Notebooks
    e. Demo on components of notebook: Add cell, copy, paste, execute, terminate, etc.
    f. Loading notebook from external sources
    g. Finding the path of current jupyter notebooks
    h. Demo notebook service in Google Colab.
    i. Why online notebooks
    j. Mention other notebook services such as Azure notebook, Kaggle notebooks etc. (conclude that google colab is better than others)
    k. Online python compilers in the web
    l. Demo codezinger and its components (mention the code plagiarism engine)

Note: The above should not make the students to worry that there is too much to handle. So please let them know that there are lot of ways we can code python but finalize few things for the course that we will be using Jupyter Notebook for discussion and explanation and CodeZinger for labs.

Motivation to be discussed

Reasons Why People Are Afraid of Coding

1. People Think Learning to Code is Difficult and They Are Not Meant to Code (Tell them that anyone can code and anyone from any engineering or even arts/science disciplines can code)
2. Fear of Failure (tell them that we have nothing to lose when failure happens so no need to feel like we will fail)
3. Thinking That It's Too Late to Learn (Tell them that it is the right time, don't think that it should have been learned in schools or 5^{th} std)

Tips to Overcome The Fear of Coding

1. Find Some Good Resources to Learn Coding (Lecture, lab and tutorial instructors of the course are best resources for one-one to learning. Internet, google and youtube is friendly resource)
2. Being in touch with the course instructors for any doubts and discussion without hesitation (tell them that anyone can self-learn anything from internet through youtube/online courses but the one-to-one interaction is hard in the internet. Note: this is to stress the students that they should not just rely on the things in the internet, clarifying in the beginning itself will make them not to avoid labs and lectures at any point of course)
3. Start Learning Without Worrying Too Much
4. Start Small
5. Build an Actual Project (this is part of the course near the Midterm we will be finalizing the project for the course)
6. Master One Programming Language Before Jumping into The Another Language (Tell them that Python is the perfect start)
7. Enjoy The Process Without Worrying About The Big Picture (Tell them not to worry about grades and marks all the time)
8. Learn the Art of “Googling” (Tell them to be careful that they should not thinkg that it is okay to copy and paste a code without knowing the functionality of the code)
9. Break Your Code Into Smaller Chunks
10. Teach Others to Code
11. Code Every Day and Keep Learning (tell them consistency is very important)