# Term Project

***Undergraduate Students: Group Project (2-3 people)***
***Graduate Students: Individual Project***

Students will have large flexibility in choosing ***Python Coding Project Topics*** that they would like to work on such as a

- Software/application demo (with your own contribution) of interesting features
  - an *extension to an existing framework*,
  - a development of *a mobile/ GUI app*
  - new games
- Big Data Analytics
  - Process large datasets, and statistically analyze data
  - find patterns from the data
  - Can apply ML/AI technology to do detection, classification, visualization
  - Visualization (plot the results)

The instructor will provide a few sample topics that the students can choose from. However, students are encouraged to propose their own topics, **as long as the topic is not directly covered in the class lectures**. The entire project should consist of the followings:

- **Proposal**: including the topic selection, literature search, references, **work plan**, group members etc.
  - Deadline: 10/04 (30%).
  - If you are working on data analytics, remember to include dataset description.
  - ***The proposal must get approved by the instructor***
- **Implementation**: Students are allowed to utilize an existing framework (if such one exists for the selected topic). Students must clearly identify the *novelty* and *contribution* of the project if using existing framework (30%).
- **Final Report**: The final report must follow the format of a technical report, which includes the following sections: Introduction, Mechanisms, Experiments/Demonstration, Results, Discussions, etc. (20%) (** your presentation slides might be replaced the report if your project demo is great )
  - **Timeline**: 8 weeks (project and report are finally due on Friday ***11/23***).
  - The final report should address the following questions:
    - Who are your target customers?
    - What problems can your demo or apps solve?
    - Why your product/idea is better than existing ones?
    - How to run your project?
    - What approaches are used?
    - What is your future work?
- **Video Presentation (record your videos)**: 10-15 minutes demonstration in the class for each group/graduate student (20%).
  - Introduce and demo the project
  - Slides are recommended.
  - I will create a **OneDrive** folder for you to share the videos.
- **Files required to upload on Blackboard Learn:**
  - Source codes (including datasets)
  - Slides/Final report

**Note:** *Students who have EE background are strongly encouraged to use Java/Python to program hardware such as Raspberry PI and Arduino.*