General Overview

1. Each of the project has the following:
   1. Some success factors (technical/business/quality)
   2. Similar type of stakeholders
   3. 8 deliverables throughout the semester
   4. Some constraints
2. Each deliverable will be your milestone
3. I will supply most of the subtasks for each of the deliverables and give you some basic analysis exercise to solve every week or two.
4. For every task, you need to organize a team meeting. For every meeting, you need to fill out a form showing the responsibilities of each of the team members
5. Based on the responsibilities in your form, you need to check in your files in the GitHub.
6. Other than the teem-meeting-form, you must have four different files:
   1. MS Project file (for all estimation analysis)
   2. MS Visio file (for all drawing, such as, dfd, context diagram)
   3. MS Word file (Mission statement, executive summary, interview q/a, weekly status reports, final report, etc.)
   4. MS Ppt file (Summary of all the important things that you want to present)
7. If you check the success factor of each project, you can realize that you need to add some more tasks/subtasks other than the basic analysis exercise specified by me. You will get the opportunity to do some research on those area. I will mention those in more detail with each of the project task.

Project Online Education:

UW Platteville wants to start online education in USA to attract the larger student population. The system should be secured, efficient and scalable enough so that all the education-activities (such as, quizzes, lectures, online grading, etc.) can be done accurately without any delay.

The major stakeholders of this systems

1. University management,
2. Faculty members and
3. Undergraduate students.

The university determined the following critical success factor:

1. Technical:
   1. System should be scalable so that it can handle the load of increasing number of students
   2. It must be secured so that quizzes/exams cannot be leaked
   3. Clear documentation on how to use
2. Business
   1. It must be easily integrated to the current online management tools such as d2l/canvas/etc. so that the teachers can manage the class with their minimum effort
3. Quality
   1. System should be 75% tested before use
   2. System should follow ISO 9216 quality standard.

The deliverables are as follows:

1. Online survey and registration
2. Upload course content
3. download course content
4. Online lectures
5. Video conferencing
6. Online Quiz
7. Marks List
8. Collaborate with other universities

Constraints:

1. Should be developed in 1million budget
2. Should be deployed and operational in December
3. Should be interoperable with the current system

If you want, you will have the opportunity to research and compare among the cutting-edge technologies that are relevant to the project. For example, cloud-based PAAS/SAAS technology, private datacenter, AWS business model, use of IOT devices, etc. While comparing the technologies, you need to come up with a reasonable estimation for financial budget and man-hour.

Project SuperComputer:

UW Platteville wants to procure a small Supercomputing (Or, High Performance Computing) cluster for educational and small research purpose. The system should be secured, efficient and scalable enough so that all the research and educational activities can go hand in hand without any conflict and the cluster can take care of large volume of course-projects and research-projects.

The major stakeholders of this systems

1. university management
2. faculty members and
3. undergraduate students

The university determined the following critical success factor:

1. Technical
   1. System should have enough space for storing data from different projects.
   2. It must be secured so that no one can hack the system. Otherwise, the hacker can gain access to the entire university network through the cluster.
   3. Students and Professors must use their pioneer id for logging in so that they do not need to remember anything else
2. Business
   1. Most of the research projects are using I/O intensive big data and most of the course-projects use compute-intensive machine learning software. So, to get most out of the cluster, it must support both.
3. Quality
   1. The hardware must not be more than 5 years old
   2. The software on the cluster should be of latest version

The deliverables are as follows:

1. Benchmark different hardware performance
2. Ask for quotation to vendors
3. Procure Hardware
4. Networking
5. OS installation and User management
6. Install application software for machine learning and big data analysis
7. Train the IT department on maintenance
8. Open for public use

Constraints:

1. Should be developed in 1million budget
2. Should be deployed and operational in December
3. Should be done with minimum cooling requirement

If you want, you will have the opportunity to research and compare among the cutting-edge technologies that are relevant to the project. For example, the latest development on Solid State Drive (SSD), Latest type of processor (e.g., Intel KNL, IBM Power8, etc), advances in big data software (Hadoop, Spark, Clouera-based services, etc.) and machine learning (e.g., deep learning tools, distributed learning, etc.). While comparing the technologies, you need to come up with a reasonable estimation for financial budget and man-hour.

Project HealthCare

UW Platteville student health service wants to make an interoperable system for managing their health data. The system should be secured, privacy protected, efficient and scalable enough so that all the sensitive health records can be shared in a privacy protected way with the desired hospital.

The major stakeholders of this systems

1. university management
2. faculty members and
3. undergraduate students

The healthcare center determined the following critical success factor:

1. Technical
   1. The system must be complied to HIPAA regulations
   2. The system must not share any of the patient’s data without the patient’s consent
   3. System should be highly secured so that no one can access it.
2. Business
   1. The patient (student/faculty/staff) should be able to access his/her own health data any time electronically without any wait.
3. Quality
   1. The hardware must not be more than 5 years old
   2. The software on the cluster should be of latest version

The deliverables are as follows:

1. Secured storage infrastructure (Cloud/Blockchain?)
2. Secured Database system
3. A digital signature strategy for consent
4. State of the art EMR management system
5. Test the compliance with the widely acceptable standards
6. Secured data sharing with research institute/university
7. Evolve the security mechanism with time (SHA/something else?/Hashing)
8. Easy-to-use user interface

Constraints:

1. Should be developed in 1million budget
2. Should be deployed and operational in December
3. Should be interoperable with the current system

You need to conduct research and compare among the cutting-edge technologies that are relevant to the project. While comparing the technologies, you need to come up with a reasonable estimation for financial budget and man-hour.