Typical Higher Education Information System

Info 370 – Systems Analysis & Design
Group Project

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The purpose of this project is to apply the concepts of systems analysis and design you learn from this class (and other classes) to implement a web-based system to its operational useable level. A group project will help you gain valuable experience to work and collaborate with other members on a large project. You will model, design and implement a system application for a real-world scenario of your choosing. Consider the following general problem-solving (SDLC) approach in building a system:

- Identify the problem.
- Analyze and understand the problem.
- Identify solution requirements or expectations.
  - Demonstrate the use of Requirement Discovery
  - Fact Finding Techniques
  - Data Gathering Methods
- Identify alternative solutions and choose the best (Cost and benefits analysis should play a vital role here).
- Design the chosen (best) solution.
  a. DFD (Context and Detailed Diagram)
  b. ERD
     - Relational Diagrams showing the relationships among the Entities.
  c. Physical Design (conversion of logical design to physical design)
     - State why you chose the software you are using as the most appropriate for the system.
     - DBMS usage for data storage and manipulation
       * Oracle, DB2, SQL Server, SQLite, etc
     - Excel, etc
  d. Other graphical design such as Gantt chart for scheduling tasks, PERT chart showing interdependencies between tasks, etc.
- Implement your design.
- Test your design
  - You may use Pay Pal and/or Credit Card payment options to test the accuracy of online payments.
- Evaluate the results.

During this semester we are examining some of the pieces (subsystems) of a typical higher education information system. In this project you are to present a design for one subsystem of such a system which will achieve certain objectives and will fit in with the designs for the other subsystems to form a unified whole. The class will be divided into teams with each group working on the design and implementation of a particular subsystem.

Each team will be graded on an oral presentation of their design and a written report. Also, an individual grading of each member by their team colleagues (Peer evaluation).

The oral presentations will be given during the class periods. The purpose of the oral presentation is to acquaint other students with your design efforts and to accept comments and suggestions on your subsystem.

The final written report for each team will include the following:

1. A title page and table of contents of your project. The final written report will be about 40 - 50 pages. Your team will design and develop a subsystem which includes a diagram (ERD and/or DFD) representing the subsystems as a single process. This diagram should show that data is needed as input for the process and where that data comes from. It should show what information is produced by the subsystem and where that information is sent. A brief verbal description of the capabilities and the sequence of operations within the subsystem should accompany this diagram.

2. A diagram showing each of the activities within the subsystem. This will show the subsystem in greater detail. Represent each activity as a process and indicate the flow of information between activities within the subsystem. This information may include both the information sent to/received from other subsystems and information maintained and used only within a given subsystem.

3. A description of each of the activities. You should use Gantt and/or PERT to show the scheduling of activities in your subsystem. For each of the processes shown in 2 above, describe:
   a. What information is needed as input to this activity and where it comes from. Input documents should be detailed where appropriate.
   b. What information is produced as output by this activity and where it is sent.
   c. What files are accessed and how they are accessed.
   d. How this process converts the inputs into the outputs, i.e., a brief description of the process itself.

4. Provide a description of any reports produced by the subsystem. Identify what information is on the report, who the report is meant for and how it will be used, how often the report will be produced.

5. Provide a description of any files used in the subsystem. Identify what information is to be stored on these files (i.e., record content), file organization and access method, and any logical relationships between the files.

Notes on the Subsystems:

What follows is a brief description of each of the subsystems. It is not intended that these descriptions provide the teams with complete information. Discussion must take place both inside and outside class.

Generally, this subsystem is concerned with students who are or may be interested university. It includes information on a potential student's profile, qualifications, and appli status.

This subsystem has the following major purposes:
1. To supply information useful in the recruitment of potential students.
2. To supply summary information on applicants to government agencies (e.g., veteran minority applicants).
3. To supply information on applicants to the admissions office so that decisions can be made on the applicant's status.
4. To notify departments regarding applicants expressing an interest in their major curriculum.
5. To notify students of their admission status.

B: REGISTRATION SUBSYSTEM:

Generally, this subsystem is concerned with registration information, both for individual stude and as well as for course sections. It includes information on official registration for each semester.

The subsystem has these major purposes:
1. Provide information on the current registration of each student.
2. Provide a listing of all students in a particular course section.
3. Assures that registration restrictions are maintained (e.g., course quotas, avoiding time conflicts, majors only, course prerequisite(s), etc.)
4. Initiates semester end grade reports.

C: STUDENT ACCOUNT SUBSYSTEM:

This subsystem is concerned with maintaining the financial accounts for registered students. It includes such information as tuition charges, fees, financial aid eligibility, and payments made. This subsystem has the following major purposes:
1. Maintain record of student charges and payment. (Payments may be from the student or from a financial aid source, etc.)
2. Generates periodic student bills.
3. Allows for inquiries into student financial records.
4. Keeps track of delinquent accounts, supplies such information as needed.

Group Project Initial Presentation Format

The format of your group project initial presentation shall include but not limited to the following points:

1.   Cover Page
    - Title of the project
    - Names of group project members
    - Professor's name, Semester and year (date)

2.   Executive Summary (Abstract), next page.

3.   System Initiation
    - Identify the problem and constraints
    - State and define the problem
    - State the objective of the project
    - Scope of the problem

4.   Systems Analysis
    - Solution requirements and expectations
    - Cost/Benefit analysis

5.   Systems Design
    - Data Flow Diagram (DFD)
    - Logical Design
        o ERD
        o Relational Diagram
        o Data Dictionary of the attributes
    - Software Requirement
        o Oracle, SQL Server, SQLite, MySql, etc
        o PHP or any other interface s/w needed in your project
    - Physical Design

etc.