Deliverable Objectives

By accomplishing this deliverable, the student will be able to

- Identify a business problem as an opportunity for decision support
- Prepare a written proposal for a system development project
- Build a prototype of a proposed DSS as part of the project proposal
- Work effectively with a system-development team
- Design and build a software package according to User-defined functionality

Deliverable Requirements – for the project that you have chosen

1. All team members must meet with the Instructor in order to discuss your project selection, to get questions answered and to outline the project plan.

   (5 points)

2. Prepare a written project proposal according to the following outline:
   a. Cover page
      i. Name of your company (fictitious). Your company will be a consulting company that will build the proposed DSS for a client company that will use the DSS.
      ii. Names of your team members.
      iii. A paragraph about your consulting company's service offerings.

   (5 points)

   b. Proposal statement
      i. Project title – a brief, but descriptive name for the project that identifies the type of DSS that you will build.
      ii. Project objectives – a concise, SMART statement of project objectives. SMART = Specific, Measurable, Attainable, Relevant, Timely.
      iii. Project motivation and justification (1 page)
         - An explanation of why the accomplishment of the project objectives is useful and relevant to the client.
         - This motivation must include a description of the decision model that will be optimized by the DSS that your company will build.
      iv. Project plan – a statement of work and schedule for the remaining deliverables.

   (10 points)

3. Build an Excel file that displays a working prototype of the DSS. The Excel file should contain
   a. A worksheet that contains cells for the *decision variables* and *performance measures*.
   b. A worksheet that contains the *parameter* database.
   c. Formulas that compute the values of the performance measures for any entries of the decision variables.
   d. Specification of the decision criteria (objective function and constraints) in Solver
   e. A working optimization of the decision.
   f. All worksheets must have descriptive names.
   g. All cells must be clearly labelled, organized logically and color-coded.

   (15 points)

4. Start a new project in Visual Studio for your DSS.
   a. Set the name of the project as your Team Name Followed by the name of the problem that the DSS solves. E.g., "ConsultantRUs_WorkerScheduleDSS"
   b. Make sure that your project and solution are in the same folder (do NOT check the box "Create directory for solution" when creating your project).
   (5 points)

5. Design your project's User Interface.
   a. Include a welcome form.
      i. The Welcome Form should include textboxes for entering a username and password to open the application.
      ii. The Welcome Form should invoke a Single-Document Interface Form or a Multi-Document Interface Form.
   b. Build a Single-Document Interface (SDI) Form or a Multiple-Document Interface (MDI) Form, which provides access to all other forms. Include on this form,
      i. Menu items, tool strip buttons, panels, etc. in this form. This form should provide access to all other forms in the project.
      ii. A logo for your application.

   (8 points)

6. The SDI or MDI form should provide links to the following forms
   a. Build a form, on which you post pictures of your team members along with their names and email addresses. You can use a picture box object to place pictures on the form and choose the stretch option to fit the pictures in the picture boxes.
   b. Build a form that will be used by the user to execute a solution to the decision model after the user enters updated information that is specific to the User's context. E.g., for projects that perform a personalized purchase or selection decision, each new User would enter User-profile data and then request an answer from the DSS.
   c. Build a form that will be used to enter the structural data for the decision such as data about costs, facilities, network connections, product data, dates, network characteristics, investment options, risk factors, input/output performance measures, shift lengths, etc. This form would be used by the system administrator.
   d. Build a form that will be used to display the solution to the model in *very clearly labeled* text boxes. This display must include,
      i. A clear statement of the decision that the DSS recommends
      ii. The optimal value of the objective function
      iii. The value of every constrained performance measure at the optimal solution.
      iv. Any other explanatory information that will assist the decision maker in understanding the rationale for the solution and how to implement the solution.
   e. In the subroutines and functions of the class, methods and forms identify with comments that kinds of data validations that are needed and the messages that will be displayed to the User when an exception occurs.
   (20 points)

7. As always, include detailed comments in your code. There should be no constants or literals in the code.
   (5 points)

Submission Instructions
1. The project proposal should be submitted in the form of a Word file.
2. The name of this Word file should be "TP_1_Team_*Number*.docx", where *Number* is the number of your Team as it is listed on the Canvas site.
3. The name of the Excel file should be "TP_1_Team_*Number*.xlxs"
4. The VB project solution should be titled "TP_Team_Number".
5. Zip all files into a file named "TP_1_Team_*Number*.zip"
6. Upload the .zip file to your Team's file box. You can gain access to this file box by first visiting your Team's Homepage.