

Project Step 1: Project Proposal and Outline (Group on Canvas)

Due Jan 12 by 2:59am **Points** 5 **Submitting** a file upload **File Types** pdf
Available Jan 3 at 2:59am - Jan 14 at 2:59am 11 days

This assignment was locked Jan 14 at 2:59am.

Aim



I want you to work in a Project Group to create a proposal for the **Project**, at most 3 pages in length. This assignment forms the basis of what your Project will be and what your database will look like. After viewing the lectures this week you should have an idea of what kinds of things databases are used for as well as the basic definitions of entities, relationships, attributes and various kinds of constraints.

Your Project should have at least 4 entity tables (4 different 'things' in your database) and at least 4 different relationships of which at least TWO must be a many-to-many relationship (like the Certifications in the ER Model lecture) (**Note: At final implementation you will only be required to execute one of the two M:M relationships*). Your proposal should explain the project and outline the 4 entities and 4 relationships in detail as described below.

This assignment also gets you started on your project right away by setting up a web server to connect to a database. I recommend using the MariaDB database created for you for this course and the ENGR servers to host your website made in **NodeJS**.

Deliverable

1. A **single PDF** containing:

Team members name and project title

a) Overview

Briefly describe the problem that a website with DB back end will solve. One excellent paragraph may be enough. Be specific (and include several numbers) so the reader can understand what sort of system is needed. A company that makes 200 sales per year will have a very different system from one that makes 20,000 sales per year. For example:

Adventure Bikes sells \$20 million in bicycles annually. A database driven website will record *Sales Orders of Products to Customers*.

b) Database Outline, in Words

Using a bullet list describe each entity in detail, its attributes and any relationships between entities. Explain the purpose of each entity. Attributes should be described in detail to include data type and any constraints. Describe any relationships between entities here too. For example:

- **Customers:** records the details of Customers we do business with
 - customerID: int, auto_increment, unique, not NULL, PK
 - email: varchar, not NULL
 - ...
 - Relationship: a 1:M relationship between Customers and Orders is implemented with customerid as a FK inside of Orders

All further steps of the Project development will be graded based on if they match your description of how the entities and relationships work. If you don't go into detail, the grader will use their best judgment, which will be final. For example, if we think a customer should be able to purchase multiple products on a sales order, and you don't clearly state this assumption in this assignment, you will likely lose points in the further steps of the project if your website does not allow multiple products on an order.

Be consistent in your naming of entities and attributes throughout your document, this helps later when you write your code. For example, if the overview describes *Customers*, then we expect an entity named Customers. If you use initial capitalization for entity names (or not), then we expect all entities to follow this convention. Its a good idea to make entities plural (e.g. Customers) and attributes singular (e.g. customerID). Its a good idea to distinguish when two words are combined (e.g. customerID or customer_id) but avoid using spaces in names (e.g. NOT customer id). You will learn more details about various data types in a later module, but check out the [SQL Datatypes](#) and [examples](#) that may help you in this step from your [CS340 Project Guide](#). There is also an [SQL FAQ](#) that can help with common naming conventions, SQL basics and common errors.

Frequently Asked Questions

Q. Can my Project be based on this obscure novel? Can I have some items in the store in my Project given away for free? Can vampires in my Project world be traders of garlic? Can students in this University (in my Project) be given free points without having to complete their assignments?

A. Yes. Anything can happen in your Project world and you are the master of that universe. The only thing we require is that you describe in detail any such quirks and deviations from general expectations. To be on the safe side, describe your world like you would to a layman.

Q. *Can I change various things in my Database Outline in later Steps of the Project?*

A. Yes. But, you would be required to supply the changed version of Project Outline + Database Outline.

Q. *Can I change my Project idea completely, later?*

A. Yes. But again, the changed version of this Step should be supplied in later steps.

Points

This is worth 5 points of your Project grade.

Project Step 1 (Group)

Criteria	Ratings				Pts
Project Overview	1 pts Full Marks Includes ALL required elements 1) team members names 2) project title 3) describes problem to be solved by web & db 4) lists numerical facts	0.7 pts Missing ONE Missing no more than ONE required element 1) team members names 2) project title 3) describes problem to be solved by web & db 4) lists numerical facts	0.5 pts Missing TWO Missing no more than TWO required element 1) team members names 2) project title 3) describes problem to be solved by web & db 4) lists numerical facts	0.4 pts Missing THREE Missing THREE or more required elements 1) team members names 2) project title 3) describes problem to be solved by web & db 4) lists numerical facts	1 pts
Overview Quality	1 pts Full Marks Clearly describes problem that website and DB will solve by referring to ACTUAL entities (e.g. record Sales of Products to Customers). Numerical facts SCOPE system (e.g. capable of recording 20K sales annually). Excellent quality for this step with little or only minor improvements recommended.	0.7 pts Good Quality Describes problem that website and DB will solve as well as presenting numerical facts but language could be more precise (e.g. refers to Sales when entity is named Orders, or numerical facts only partially scope system). Good quality for this step but substantive improvements recommended.	0.5 pts Acceptable Overly wordy (the words chosen are excessive or redundant) or excessively brief (missing basic supporting information). Some irrelevant statements or details are included. Several logical gaps in describing problem that website and DB will solve as well as presenting numerical facts to scope system. Acceptable quality at this step, but recommended additional effort to improve for subsequent project steps.	0.3 pts Needs Improvement Mostly unclear. The work lacks an identifiable structure and it is impossible to follow many of the ideas expressed. Significant gaps in describing problem that website and DB will solve as well as presenting numerical facts to scope system. Recommend revising this before proceeding to the next project step.	1 pts

Criteria	Ratings				Pts
DB Outline	1 pts Full Marks Includes ALL required elements 1) a bullet list describe each entity in detail, 2) relationships between this entity and other entities, 3) purpose of each entity, 4) attributes, 5) attribute datatypes, 6) any constraints	0.7 pts Missing ONE Missing no more than ONE required element 1) a bullet list describe each entity in detail, 2) relationships between this entity and other entities, 3) purpose of each entity, 4) attributes, 5) attribute datatypes, 6) any constraints	0.5 pts Missing TWO Missing no more than TWO required element 1) a bullet list describe each entity in detail, 2) relationships between this entity and other entities, 3) purpose of each entity, 4) attributes, 5) attribute datatypes, 6) any constraints	0.4 pts Missing Three or More Missing three or more required elements 1) a bullet list describe each entity in detail, 2) relationships between this entity and other entities, 3) purpose of each entity, 4) attributes, 5) attribute datatypes, 6) any constraints	1 pts
DB Entities	0.9 pts Full Marks Each entity represents a SINGLE IDEA to be stored as a list in the database. Excellent quality for this step with little or only minor improvements recommended.	0.35 pts Good Quality Each entity MOSTLY represents a SINGLE IDEA to be stored as a list in the database although potentially some conflation of more than single idea in an entity OR multiple entities should be combined. Good quality for this step but substantive improvements recommended.	0.25 pts Changes Needed Some entities do represent a single idea BUT logical gaps in one or more entities DO NOT represent a SINGLE IDEA to be stored as a list in the database. Please see the grading comments and change your entities for subsequent project steps.	0.15 pts Problematic Significant logical gaps in multiple entities that DO NOT represent a SINGLE IDEA to be stored as a list in the database. Please see the grading comments and update your entities for subsequent project steps. Contact the TA or instructor if you are not clear.	0.5 pts

Criteria	Ratings				Pts
1:M Relationships	0.5 pts Full Marks ALL relationships correctly formed by an entity PK being placed as a FK inside another entity to create a 1:M relationship. Excellent quality for this step with little or only minor improvements recommended.	0.35 pts Good Quality At most ONE relationship incorrectly formed. For example, the wrong attribute (something other than an entity PK) is placed inside another entity to create a 1:M relationship. Good quality for this step but changes recommended.	0.25 pts Changes Needed More than ONE relationship incorrectly formed. For example, the wrong attribute (something other than an entity PK) is placed inside another entity to create a 1:M relationship . Please see the grading comments and update for subsequent project steps.	0.15 pts Problematic Significant logical gaps such that 1:M relationships are not correctly formed. Please see the grading comments and update your entities for subsequent project steps. Contact the TA or instructor if you are not clear.	0.5 pts
M:M Relationships	0.5 pts Full Marks M:M relationship(s) are correctly formed such that an intersection table has two FKs and correctly facilitates a M:1 relationship between two other entities. The required number of M:M relationships are depicted. Excellent quality for this step with little or only minor improvements recommended.	0.35 pts Good Quality Correctly forms M:M relationship(s) such that an intersection table has two FKs and correctly facilitates a M:1 relationship between two other entities. BUT does not meet the required number of M:M relationships per the instructions. Good quality for this step but changes recommended.	0.25 pts Changes Needed M:M relationships incorrectly formed. For example, the intersection table does not have two FKs or does not create two M:1 relationships. Please see the grading comments and update for subsequent project steps.	0.15 pts Problematic Significant logical gaps such that M:M relationships are not correctly formed. Please see the grading comments and update your for subsequent project steps. Contact the TA or instructor if you are not clear.	0.5 pts

Criteria	Ratings				Pts
Consistency in naming	0.5 pts Full Marks ALL entities are 1) consistently plural or singular (suggest plural), 2) all attributes are consistently plural or singular (suggest singular), 3) all entities and attributes use consistent initial capitalization or all lower case (suggest initial capitalization for entities and all lower case for attributes) 4) all attributes do not have spaces and use either under_scores or camelCase.	0.35 pts One Inconsistency At most ONE inconsistency: in entities are 1) consistently plural or singular (suggest plural), 2) all attributes are consistently plural or singular (suggest singular), 3) all entities and attributes use consistent initial capitalization or all lower case (suggest initial capitalization for entities and all lower case for attributes) and 4) all attributes do not have spaces and use either under_scores or camelCase.	0.25 pts TWO Inconsistencies At most TWO inconsistencies: in entities are 1) consistently plural or singular (suggest plural), 2) all attributes are consistently plural or singular (suggest singular), 3) all entities and attributes use consistent initial capitalization or all lower case (suggest initial capitalization for entities and all lower case for attributes) and 4) all attributes do not have spaces and use either under_scores or camelCase.	0.15 pts Three or more Inconsistencies THREE or MORE inconsistencies: in entities are 1) consistently plural or singular (suggest plural), 2) all attributes are consistently plural or singular (suggest singular), 3) all entities and attributes use consistent initial capitalization or all lower case (suggest initial capitalization for entities and all lower case for attributes) and 4) all attributes do not have spaces and use either under_scores or camelCase.	0.5 pts
					Total Points: 5