



CTU training solutions

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DBD622

UNIT STANDART
ELO 1. Apply database development skills, using a Microsoft SQL Server 2008 program.
ELO 4. Understand general database theory.
ELO 5. Create database access for a computer application using structured query language.
ELO 6. Understand Computer Database Management Systems.
ELO 8. Apply the principles of creating a computer program using a procedural programming language in a GUI environment.

DATE:	
Student Name:	

Scenario

You have been hired by CTU Training Solutions to help with their LMS Development. As stated to you by the CEO this system is to help Facilitators keep track of their student's marks, student's information and the students parent information.

More Information:

All student marks are collected through formative and summative assessments. The average of all the formative assessments will form the formative assessment mark. The average of all the summative assessments will form the summative assessment mark. These marks are then added together to form a mark for a Learning Unit (LU). Each course has its own amount of LU and each LU has its own amount of formative and summative assessments.

Students also write international exams and these marks will also have to be stored in the database. Each course has its own amount of international exams that a learner must complete.

Not all of the CTU branches (Campuses) present the same courses and this will have to be taken into account as well. Every year a new course might be added to a certain campus or taken away.

Each student must be assigned to a certain course to ensure that the student receives the correct formative and summative assessments and marks.

The application has the following requirements:

Database :

Total Marks

Marks Obtained

Moderated

- You must be able to store student information in the database.
- You must be able to store parent/Guardian/Sponsor information in the database.
- You must be able to store the mark allocation per student as needed.

Application:

- The application must save the data to a database.
- Allow an administrator like a branch manager to add a student to the database.
- Allow an administrator like a branch manager to add a course to the database.
- Allow a facilitator to add marks for a student (Only a facilitator that facilitates the course a student belongs to on a certain campus must be allowed to add marks for that student)
- An administrator or a facilitator must also be able to add as many learning units (LU) as needed and as many formative and summative assessments per LU as needed.
- Once a LU has been added the facilitator can then assign marks to a specific student for that LU in the form of providing the marks for the formative and summative assessments for a specific student on a specific LU.
- A facilitator must also be able to add an international to a student along with the mark obtained.
- A person will need to be able to view the information that was added.

Warehouse:

- You need create a data warehouse solution that will be able to hold all of the data that you collected in the first part of this project.

Keep the following in mind when while you are creating your solution:

- You will have to be able to pull out information for the following reports from your warehouse:
 - Campuses along with all of the students in that campus.
 - Campuses along with the courses that are offered at that campus.
 - At which campus does which facilitator belong?
 - Campuses along with their courses and facilitators and their students.
 - All marks per campus per course per student.
- You need to create a SSIS solution that will extract your data from the database that you created into your data warehouse. Your SSIS solution should extract the information out of your tables in your schemas in such a way that it would seem like each schema is actually located in a different location (Make us of more than one package).
- Include a DQS process in your solution.

You will have to provide the following in order to be found as competent:

- All the SQL code used to create your data warehouse (just the creation of the Tables and the relations between these tables not the insert of the data). Your warehouse should also make use of the following:
 - Tables that are configured in the right way (fact and dimensions).
 - Relationships between the tables (create a star or snowflake dimension).
 - All fields/columns should have an appropriate type to match the data that it will store.
- You will need to provide a screenshot of every package's ETL process along with any code that you made use of extra to get certain information.
- If you made use of a DQS process then you will need to provide screenshots of how you are using it in order to prove that it works.

Your Company Requirements:

- Your database must be in 3rd normal form.
- Your Database Should Contain at least 1000 Rows of Dummy Data in each Table(Use <https://www.generatedata.com/> to help with data generation)
- Your database must make use of Schemas, as these will be for the different campuses that CTU has.
- You have to make use of:
 - Stored Procedures
 - Functions
 - Views
 - Clustered and NonClustered Indexes

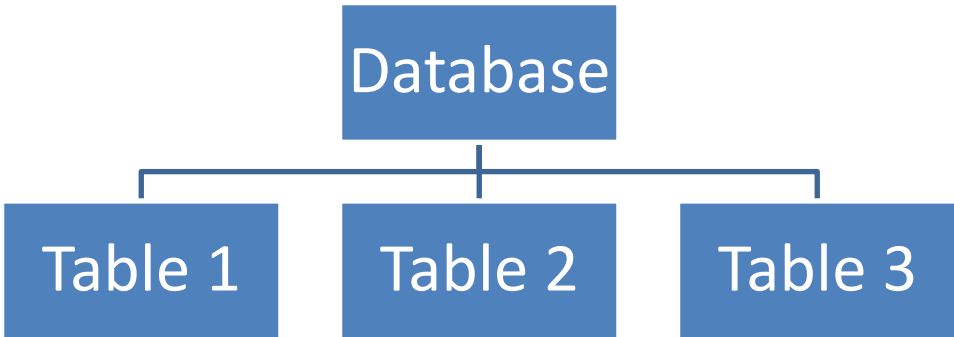
You must follow the application life cycle and include documentation proving that the cycle was followed

- Programming Life Cycle:



Formative 1 (Planning)		65	0	0
1.	Report Should Contain a Title with the Following information: <ul style="list-style-type: none">• Name of the Creator• Title of the program	4		
2.	Report Should Contain a Table of Contents with the following Information: <ul style="list-style-type: none">• Provide sufficient detail to guide the reader through the report, including page numbers.• Include boxes, figures, tables, and appendices.	6		
3.	Report Should Contain an Program Vision Section	3		
4.	Report Should Contain an Goals, Action Steps, and Outcomes Section: <ul style="list-style-type: none">• State clearly each of your program goals.• Under each program goal, detail the action steps you will take to achieve the goal.• The action steps should be practical and specific.• State the intended outcome for each goal.	8		

5.	Report Should Contain an Program Structures and Reach Section: <ul style="list-style-type: none"> Describe the scale of the program, detailing the size and details of the target population (grades, ages). Describe the program setting. This should include both the space for the program and the time of year and day it is offered. 	4		
6.	Report Should Contain an Evaluation Plan Section: <ul style="list-style-type: none"> Clearly state the evaluation questions and tie the questions to the following bullets: <ul style="list-style-type: none"> Describe the types of data that you will collect (quantitative, qualitative, or mixed). Describe who you will collect information from (e.g., program participants, staff, community members, stakeholders) and how these individuals will be selected to participate in the evaluation. Explain what data collection tools you will use, how they will be chosen, and how the data produced is intended to answer the evaluation questions. Explain the ethical considerations you are taking into account when conducting the evaluation. Make sure to explain how you are protecting the confidentiality of respondents. 	10		
7.	Report Should Contain a UML Diagram Detailing the Program flow	5		
8.	Report Should Contain an Conclusions, Challenges, and Recommendations Section: <ul style="list-style-type: none"> Conclusions should summarize the program plan into one comprehensive paragraph. The challenges should outline for the reader practical problems to the execution of the plan and recommended solutions to that challenge. For example, a challenge may be that the contract for programming needs to be executed before the school year begins so that the organization can take the appropriate time required to hire skilled staff. 	4		
9.	Spelling and Grammar is correct	5		
10.	File Should be Submitted as an PDF Document	3		
11.	File Should Be Named as follows: ICAS Number _ Student Full Name _ DBD622_FA1	3		
12.	Late Submission (<ul style="list-style-type: none"> 1 Day Late Submission (7/10) 2 Day Late Submission (4/10) 3 Day Late Submission (1/10))	10		

		Total Marks	Marks	Moderated
	<ul style="list-style-type: none"> Formative 2 (Analysis and Design) 	70		
13.	Report Should Contain a Title with the Following information: <ul style="list-style-type: none"> Name of the Creator Title of the program 	4		
14.	Report Should Contain a Table of Contents with the following Information: <ul style="list-style-type: none"> Provide sufficient detail to guide the reader through the report, including page numbers. Include boxes, figures, tables, and appendices. 	6		
15.	Report Should Contain an graph Highlighting the results of FA1's Evaluation Questions	10		
16.	Report Should Contain the following Format information: <ul style="list-style-type: none"> 3 Different Layout designs 3 Different Color Schemes 	12		
17.	Report Should Contain what Final layout and color scheme you chose as well as motivation as to why.	3		
18.	Report Should Contain Screenshots of application flow using the chosen Layout and Color Scheme Example: <div style="text-align: center; margin: 20px 0;">  <pre> graph TD Database[Database] --- Table1[Table 1] Database --- Table2[Table 2] Database --- Table3[Table 3] </pre> </div>	10		
19.	Report Should Contain an Conclusions, Challenges, and Recommendations Section: <ul style="list-style-type: none"> Conclusions should summarize the program plan into one comprehensive paragraph. The challenges should outline for the reader practical problems to the execution of the plan and recommended solutions to that challenge. For example, a challenge may be that the contract for programming needs to be executed before the school year begins so that the organization can take the appropriate time required to hire skilled staff. 	4		
20.	Spelling and Grammar is correct	5		
21.	File Should be Submitted as an PDF Document	3		

22.	File Should Be Named as follows: ICAS Number _ Student Full Name _ DBD622_FA2	3		
23.	Late Submission (<ul style="list-style-type: none"> • 1 Day Late Submission (7/10) • 2 Day Late Submission (3/10) • 3 Day Late Submission (0/10))	10		
		Total Marks	Marks Obtained	Moderated
Formative 3 (Final Product)		150		
Database		48		
24.	<ul style="list-style-type: none"> • Database is in 3rd Normal form 	3		
25.	<ul style="list-style-type: none"> • Schemas was used to Separate the different Campuses 	10		
26.	<ul style="list-style-type: none"> • Information can be inserted to all Tables 	5		
27.	<ul style="list-style-type: none"> • Stored Procedures Created as Needed (Minimum of 3 Required) 	6		
28.	<ul style="list-style-type: none"> • Functions created as Needed (Minimum of 3 Required) 	6		
29.	<ul style="list-style-type: none"> • Views Created as Needed (Minimum of 3 Required) 	6		
30.	<ul style="list-style-type: none"> • Clustered Indexes created as needed (Minimum of 3 Required) 	6		
31.	<ul style="list-style-type: none"> • Non Clustered Indexes created as needed (Minimum of 3 Required) 	6		
Application		33		
32.	<ul style="list-style-type: none"> • The application must save the data to a database. 	5		
33.	<ul style="list-style-type: none"> • The application allows an administrator like a branch manager to add a the following to the database: <ul style="list-style-type: none"> ○ Student information ○ Course information 	8		
34.	<ul style="list-style-type: none"> • Allow a facilitator to add marks for a student (Only a facilitator that facilitates the course a student belongs to on a certain campus must be allowed to add marks for that student) 	5		
35.	<ul style="list-style-type: none"> • An administrator or a facilitator must also be able to add as many learning units (LU) as needed and as many formative and summative assessments per LU as needed 	5		
36.	<ul style="list-style-type: none"> • Once a LU has been added the facilitator can then assign marks to a specific student for that LU in the form of providing the marks for the formative and summative assessments for a specific student on a specific LU. 	5		
37.	<ul style="list-style-type: none"> • A facilitator must also be able to add an international to a student along with the mark obtained 	5		
Data Warehouse		69		
38.	Data Warehouse Created	3		
39.	Data Warehouse Contains Data as requested	3		

40.	Data Warehouse contains Tables that are configured in the right way: <ul style="list-style-type: none"> • Fact • Dimensions. 	6		
41.	Data Warehouse contains Relationships between the tables (create a star or snowflake dimension).	3		
42.	All fields/columns should have an appropriate type to match the data that it will store	3		
43.	SSIS Solution was created	3		
44.	SSIS solution extracted the information out of the tables in your schemas in such a way that it would seem like each schema is actually located in a different location (Make us of more than one package)	5		
45.	Screenshots of every package's ETL process along with any code has been Submitted	5		
46.	Proper programming etiquette was used: <ul style="list-style-type: none"> • The code should be easy to read. For this: <ul style="list-style-type: none"> ○ Try to define different sections of the code by segmenting blocks of code into a paragraph. ○ Make use of indentation for indicating the start and end of the control structures along with a clear specification of where the code is between them. • There should be consistency in the naming convention of the variables throughout the code. In addition, the data should be described in the code via comments. • Name the functions according to what function they perform. • The code should be such that one should be able to understand it even after returning to it after some time gap, without that person having look at every line of it. • Follow a specific method for commenting on the work. 	10		
47.	Project Files Should be Zipped and Submitted on ColCampus	5		
48.	File Should Be Named as follows: ICAS Number _ Student Full Name _ DBD622_FA3	3		
49.	Late Submission (<ul style="list-style-type: none"> • 1 Day Late Submission (15/20) • 2 Day Late Submission (5/20) • 3 Day Late Submission (0/20))	20		

	TOTAL:	285
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