



CS619-Final Project

Some Basic Questions Collected By

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During Viva Exam

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V-U

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Updated.

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In the Name of Allāh, the Most Gracious, the Most Merciful

Difference between assignment operator (=) and equality operator (==)?

Assignment operator and equality operator are different but they are similar in reading. = operator is used to assign value and the other hand == operator is used to said equal.

Be careful! The operator = (one equal sign) is not the same as the operator == (two equal signs), the first one is an assignment operator (assigns the value at its right to the variable at its left) and the other one (==) is the equality operator that compares whether both expressions in the two sides of it are equal to each other.

Thus, in the last expression ((b=3) == a), we first assigned the value 3 to b and then we compared it to a, that also stores the value 3, so the result of the operation is true.

Why we use [] Square Bracket in Programing?

Square brackets [] are used for arrays, indexers, and attributes.

What is Data Partitioning?

Data Partitioning is the formal process of determining which data subjects, data occurrence groups, and data characteristics are needed at each data site. It is an orderly process for allocating data to data sites that is done within the same common data architecture.

Or

Data Partitioning is also the process of logically and/or physically partitioning data into segments that are more easily maintained or accessed. Current RDBMS systems provide this kind of distribution functionality. Partitioning of data helps in performance and utility processing.

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Tell me the Example Multi Valued Attribute?

A multivalued attribute can have more than one value at a time for an attribute. For ex., skills of a surgeon is a multivalued attribute since a surgeon can have more than one skill.

Database-design



Class Definition:

Class is a collection of data types & function that are use the user defined variables.

Or

Class is a related collection of methods and variables.

What is DML?

A **data manipulation language (DML)** is a family of syntax elements similar to a computer **programming language** used for **selecting, inserting, deleting and updating data in a database**. Performing read-only queries of data is sometimes also considered a component of **DML**.

What is normalization? And how many types of normalization? Will number of tables reduce or increase as a result of normalization?

Normalization is the process of organizing data into a related table; it also eliminates redundancy and increases the integrity which improves performance of the query. To normalize a database, we divide the database into tables and establish relationships between the tables

In 1st NF:

An entity is in the first normal form if it **contains no repeating groups**.

In 2nd NF:

A relation is in 2NF if it is in 1NF and every **non-key attribute is fully dependent on each candidate** key of the relation.

In 3rd NF:

A relation is in third normal form, if it is in 2NF and every **non-key attribute of the relation is non-transitively dependent on each candidate** key of the relation.

In 4th NF:

A table is in fourth normal form (4NF) if and only if it is in **Boyce-Codd Normal Form BCNF** and contains no more than one multi-valued dependency.

Denormalization is the process of adding redundant data to speed up complex queries involving multiple table JOINS. One might just go to a lower form of Normalization to achieve Denormalization and better performance. Data is included in one table from another in order to eliminate the second table which reduces the number of JOINS in a query and thus achieves performance.

What is DDL?

Data Definition Language (DDL) is a standard for commands that define the different structures in a database. DDL statements create, modify, and remove database objects such as tables, indexes, and users. Common DDL statements are CREATE, ALTER, and DROP.

What is Join?

A JOIN is a means for combining fields from two tables (or more) by using values common to each.

What is Schema?

A **schema** is a collection of database objects (as far as this hour is concerned—tables) associated with one particular database username. This username is called the **schema** owner, or the owner of the related group of objects. You may have one or multiple **schemas** in a database.

What is class?

In **object-oriented** programming, a class is an extensible program-code-template for creating objects, providing initial values for state (member variables) and implementations of behavior (member functions or methods).

Define Data base.

A **database** is an organized collection of data. It is the collection of schemas, tables, queries, reports, views and other objects.

What is redundancy?

Data **redundancy** is a condition created within a **database** or data storage technology in which the same piece of data is held in two separate places. This can mean two different fields within a single **database**, or two different spots in multiple software environments or platforms.

What is CRUD?

CRUD stands for Create, Read, Update and Delete. (Retrieve may occasionally be substituted for Read.)

What is View?

View is the result set of a stored query on the data, which the **database** users can query just as they would in a persistent **database** collection object. This pre-established query command is kept in the **database** dictionary

What is primary key? --- Define all keys

An attribute or a set of attributes that uniquely identifies a row or record in a relation is known as primary key.

Composite key:

A primary key that consist of two or more attributes is known as Composite key.

Candidate key:

The attributes or set of attributes that's can be used as primary key is called candidate key.

Foreign Key:

A foreign key is an attribute or set of attributes in a relation whose value match a primary key in another relation.

Secondary Key:

An attribute or set of attributes that is basis for retrieval is known as secondary key.

What is Stored Procedure?

A **stored procedure** is a set of Structured Query Language (SQL) statements with an assigned name that's **stored** in the database in compiled form so that it can be shared by a number of programs.

What is Trigger?

In a DBMS, a trigger is a SQL procedure that initiates an action (i.e., fires an action) when an event (INSERT, DELETE or UPDATE) occurs.

What is SQL?

SQL is a standard language for accessing databases.

Difference between 'void' and 'Boolean'?

Void means empty, nothing and Boolean is true or false

Difference between 'while' and 'do while' loop?

While loop has condition at the start and do while has condition at the end and runs at least one time...

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What is encapsulation?

Encapsulation is an Object Oriented Programming concept that binds together the data and functions that manipulate the data, and that keeps both safe from outside interference and misuse. Data **encapsulation** led to the important OOP concept of data hiding.

How 'try and catch block' work and what about multiple catch blocks?

The try-catch statement consists of a **try** block followed by one or more **catch** clauses, which specify handlers for different exceptions.

What is Access Modifier?

Access modifiers are keywords used to specify the declared accessibility of a member or a type. This section introduces the four access modifiers:

Public: Access is not restricted.

Protected: Access is limited to the containing class or types derived from the containing class.

Internal: Access is limited to the current assembly.

Private: Access is limited to the containing type.

Select/Insert/Update/Delete queries.

The SELECT statement is used to select data from a database.

SQL SELECT Syntax

```
SELECT column_name,column_name  
FROM table_name;  
or  
SELECT * FROM table_name;
```

The UPDATE statement is used to update records in a table.

SQL UPDATE Syntax

```
UPDATE table_name  
SET column1=value1,column2=value2,...  
WHERE some_column=some_value;
```

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The INSERT INTO statement is used to insert new records in a table.

The SQL INSERT INTO Statement

```
INSERT INTO table_name  
VALUES (value1,value2,value3,...);
```

The DELETE statement is used to delete records in a table.

SQL DELETE Syntax

```
DELETE FROM table_name
```

```
WHERE some_column=some_value;
```

Define string?

A string is a data type used in programming, such as an integer and floating point unit, but is used to represent text rather than numbers.

It is comprised of a set of characters that can also contain spaces and numbers.

Array

An array is a data structure, which can store a fixed-size collection of elements of the same data type.

Define classes.

In object-oriented programming, a class is an extensible program-code-template for creating objects, providing initial values for state (member variables) and implementations of behavior (member functions or methods).

Define constructor.

In class-based object-oriented programming, a constructor (abbreviation: ctor) in a class is a special type of subroutine called to create an object. It prepares the new object for use, often accepting arguments that the constructor uses to set required member variables.

What do you know about ERD?

An entity-relationship diagram (ERD) is a graphical representation of an information system that shows the relationship between people, objects, places, concepts or events within that system. An ERD is a data modeling technique that can help define business processes and can be used as the foundation for a relational database.

In computer programming, a loop is a sequence of instructions that is continually repeated until a certain condition is reached.

onLoad executes the specified C# code when a new document is loaded into a window

Primary Key:

Can be only one in a table

In some DBMS it cannot be NULL - e.g. MySQL adds NOT NULL

Primary Key is a unique key identifier of the record

Unique Key:

Can be more than one unique key in one table

Unique key can have null values

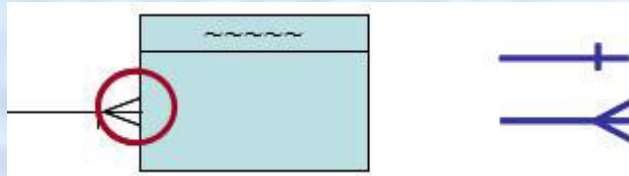
It can be a candidate key

Unique key can be null and may not be unique

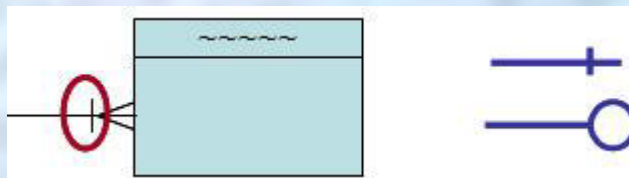
Cardinality and Modality

Cardinality and Modality work together to define the relationship.

Cardinality indicates the maximum number of times an instance in one entity can be associated with instances in the related entity.



Modality indicates the minimum number of times an instance in one entity can be associated with an instance in the related entity.



جھوٹ رزق کو کہا جاتا ہے

Types of Relationships

1. **One to One:** This type of relationship is rarely seen in real world.



The above example describes that one student can enroll only for one course and a course will also have only one Student. This is not what you will usually see in relationship.

One to Many: It reflects business rule that one entity is associated with many number of same entity. The example for this relation might sound a little weird, but this means that one student can enroll to many courses, but one course will have one Student.

The



Many to Many:

This Diagram represents that many students can enroll for more than one courses.



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Functional Requirements Non Functional requirements

Functional Requirements :

A functional requirement describes what a software system should do,
Functional Requirements: specify the functionality of the system.
Functional requirements are the activities that a system must perform

Non Functional Requirements :

Non-functional requirements describe how the system works,
How the system should behave and that it is a constraint upon the systems behavior.

Why we Use Extend Line in Use Case Diagram?

An "extends" relationship indicates alternative options under a certain use case

What is message in sequence diagram?

Messages are arrows that represent communication between objects. Use half-arrowed lines to represent asynchronous messages. Asynchronous messages are sent from an object that will not wait for a response from the receiver before continuing its tasks.

Define Sequence Diagrams?

The Sequence Diagram shows how the objects interact with others in a particular scenario of a use case.

Define Data Modeling?

Abstraction of something real is Data Modeling Such as Road Map.

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قسمت خود بخود بدل جائے گی

Difference Between ERD and Class Diagram?

Entity Relationship Diagram (ERD)

An entity-relationship diagram—otherwise known as an ERD—is a data modeling technique that creates an illustration of an information system's entities and the relationships between those entities.

As noted above, there are 3 ingredients in a standard entity-relationship diagram:

Entities, which represent people, places, items, events, or concepts.

Attributes, which represent properties or descriptive qualities of an entity

Relationships, which represent the link between different entities

Class Diagram

Class diagrams are used to represent real life objects in our design by capturing its data methods and relationships of these methods with each other. These classes are basic building blocks of our object oriented system. Class diagrams are represented with white boxes which consist of three parts. Each of these parts has unique characteristics.

Syntax

Class Name

Attributes

Methods

The details of these parts are as follow.

1. The upper part contains the name of the class
2. The next part contains the attributes of the class.
3. The third part contains the methods and operations on the class.

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*Winning is not everything,
but wanting to win is
everything.....
Go Ahead..... Best Of Luck !*