

# Q1:-What is the use of ER Diagrams?

What are the uses  
of ER diagrams?

Where are they used?

Although they can be  
used to model almost  
any system they are

primarily used in the following areas.

## ER Models in Database Design

They are widely used to design relational databases. The entities in the ER

schema become  
tables, attributes and  
converted the  
database schema.

Since they can be  
used to visualize  
database tables  
and their  
relationships it's  
commonly used for  
database

troubleshooting as well.

Entity relationship  
diagrams in  
software  
engineering

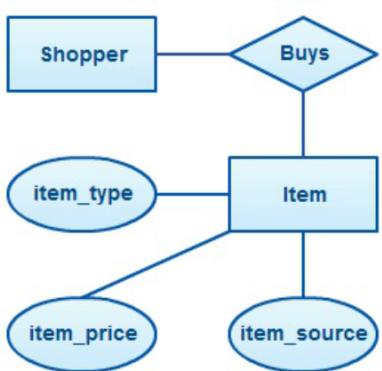
Entity relationship  
diagrams are used in

software engineering during the planning stages of the software project. They help to identify different system elements and their relationships with each other. It is often used as the basis for data flow

diagrams or DFD's as they are commonly known.

For example, an inventory software used in a retail shop will have a database that monitors elements such as purchases, item, item

type, item source and item price. Rendering this information through an ER diagram would be something like this:



ER diagram example with entity having

# attributes

In the diagram, the information inside the oval shapes are attributes of a particular entity

Q3:-

Some common  
aggregate functions  
include:

- Average (also called arithmetic mean)
- Count
- Maximum

- Minimum
- Range
- NaNmean (the mean ignoring NaN values, also known as "nil" or "null")
- Median

- Mode

- Sum

Q4:-

Children Bicycles	Comfort Bicycles	Cruisers Bicycles	Cyclocross Bicycles	Electric Bikes	Mountain Bikes	Road Bikes
59	30	78	10	24	60	60

In addition, we can  
add the model year to

group the category by model year as shown in the following output:

model_year	Children Bicycles	Comfort Bicycles	Cruisers Bicycles	Cyclocross Bicycles	Electric Bikes	Mountain Bikes	Road Bikes
2016	3	3	9	2	1	8	0
2017	19	10	19	2	2	21	12
2018	37	17	50	6	21	31	42
2019	0	0	0	0	0	0	6

Introduction to  
SQL  
Server PIVOT op

# operator

## SQL

Server PIVOT operator rotates a table-valued expression. It turns the unique values in one column into multiple columns in the output and

performs aggregations on any remaining column values.

You follow these steps to make a query a pivot table:

- First, select a base dataset for pivoting.

- Second, create a temporary result by using a derived table or common table expression (CTE)
- Third, apply the PIVOT operator.

Let's apply these

steps in the following example.

First, select category name and product id from the production.products and production.categories tables as the base data for pivoting:

```
SELECT
category_name,
product_id FROM
production.products p
INNER JOIN
production.categories
c ON c.category_id =
p.category_id
```

Code language: SQL  
(Structured Query

# Language) (sql)

Second, create a temporary result set using a derived table:

```
SELECT * FROM
( SELECT
category_name,
product_id FROM
production.products p
```

```
INNER JOIN  
production.categories  
c ON c.category_id =  
p.category_id ) t
```

**Q5:-What are  
Joins?**

**JOINS in SQL are**

commands which are used to combine rows from two or more tables, based on a related column between those tables. There are predominantly used when a user is trying to extract data from tables which have one-

to-many or many-to-many relationships between them.

Now, that you know what joins mean, let us next learn the different types of joins.

# How many

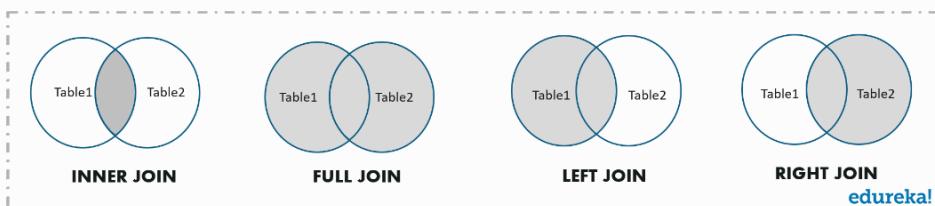
# types of Joins are there in SQL?

There are mainly four types of joins that you need to understand.  
They are:

- INNER JOIN

- FULL JOIN
- LEFT JOIN
- RIGHT JOIN

You can refer to the  
below image.



# How do I know which join to use in SQL?

Let us look into each one of them. For your better understanding of this concept, I will be considering the

following three tables  
to show you how to  
perform the Join  
operations on such  
tables.

Q6:-  
have a table  
(students\_all) that  
contains 4 columns  
as below :-

- student\_name
- age
- student\_id
- class

Now how can I search  
about a specific value

such as 'left' in all  
columns in one query  
using SQL Server  
2008.

I mean how can make  
something like Excel  
(Ctrl+F) to find any  
value in all columns.

