



# Pedagogy for Online and Blended Teaching - Learning Process

FDP201x



## FLIPPED CLASSROOM ACTIVITY

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# About you

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I am Renetha J.B., Associate Professor, Department of Computer Science and Engineering in Lourdes Matha College of Science and Technology, Thiruvananthapuram.

I am presenting a design of flipped classroom activity on the topic **SQL** which comes under Database management system in Computer Science domain .

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SQL

PRINCIPLES OF DATABASE DESIGN

COMPUTER SCIENCE

4<sup>th</sup> SEMESTER B.TECH CSE  
STUDENTS

LOURDES MATHA COLLEGE OF SCIENCE AND TECHNOLOGY,  
THIRUVANANTHAPURAM

# About Out-of-Class Segment

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- Meant mainly for Information-Transmission to student.
- Mostly help achieve lower-order cognitive levels (Recall-Understand-Apply)
- Teacher takes time to search and locate videos.
- Out-of-Class activity should not be too lengthy,

# Out-of-class Activity Design -1



## Learning Objectives of Out-of-Class Activity

After watching the video students should be:

1. Able to construct, modify and destroy the structure of a table using DDL commands
2. Able to manipulate data in the table using DML commands
3. Able to develop queries for relational database in the context of practical applications using data retrieval commands

## Key Concepts to be covered

1. DDL commands
2. Integrity constraint
3. DML commands

# Out-of-class Activity Design - 2



Main Video Source URL

<http://tinyurl.com/BasicSQL-1>

License of Video

Creative Commons Attribution license(reuse allowed)

## Mapping Concept to Video Source

CONCEPT	VIDEO SEGMENT	DURATION (in min)
SQL introduction, history	V1 00:00 – 00:42	0.42
DDL- Create, Alter ,Drop	V2 00:43 – 05:07	4.25
	V3 05:08 - 06:25	1.18
DML- Insert, Delete, Update, Select	V4 06:26 – 10:00	3.35

**TOTAL DURATION**

**10.00 min**

# Out-of-class Activity Design - 3



## Aligning Assessment with Learning Objective

Learning Objective	Assessment Strategy	Expected duration (in min)	Additional Instructions (if any)
Able to construct, modify and destroy the structure of a table using DDL commands	<p>Q1) Create a table named student for storing the details of students, with fields rollnumber,name,address and city. Ensure that each student possess a unique rollnumber. Mark can contain decimal values. Assume suitable data types and constraints using DDL commands.</p> <p>Q2) Remove address column and then add one more column 'mark' to the table created in question Q1 using DDL commands.</p> <p>Q3) Remove the structure and contents of table Employee using DDL commands..</p>	10 min	<p>Watch V2 and pause video and then answer Q1.</p> <p>Watch V3 and pause video and then answer Q2</p>



# Out-of-class Activity Design - 3



## Aligning Assessment with Learning Objective

Learning Objective	Assessment Strategy	Expected duration (in min)	Additional Instructions (if any)												
Able to manipulate data in the table using DML commands	<p>Consider the following relation: Student(rollnumber,name,city,mark)</p> <p>Q1. Add the following three rows into table student using DML insert</p> <table border="1"><tr><td>10</td><td>Anu</td><td>TVM</td><td>35</td></tr><tr><td>11</td><td>Ron</td><td>EKM</td><td>45</td></tr><tr><td>12</td><td>Roshan</td><td>CLT</td><td></td></tr></table> <p>Q2. Remove the details of student Ron from Student table using DML delete.</p> <p>Q3. Give 50 marks to Roshan using DML update.</p>	10	Anu	TVM	35	11	Ron	EKM	45	12	Roshan	CLT		10 min	Watch V4 <i>and pause video</i> and then answer Q1 to Q3
10	Anu	TVM	35												
11	Ron	EKM	45												
12	Roshan	CLT													

# Out-of-class Activity Design - 3



## Aligning Assessment with Learning Objective

Learning Objective	Assessment Strategy	Expected duration (in min)	Additional Instructions (if any)
Able to develop queries for relational database in the context of practical applications using data retrieval commands	<p>Consider the following relations Customer(Cust_id, custname,city) Account(Acctno,Branchname, Amnt) Depositor(Cust_id,Accno)</p> <p>Q1. List the name of customer, account number and the branch from where they have taken account with atleast 150000 using SELECT query.</p>	10 min	<p>Watch V2 <i>and pause video</i> and then answer Q1</p> <ul style="list-style-type: none"><li>• <b>Submit answers for all questions in A4 sheet paper on or before 9 AM on the next working day to get total 10 out of 10 marks for part of internal.</b></li><li>• <b>Submissions after the stipulated time -5 marks</b></li></ul> <p><u>Note: Submission will not be accepted after two working days</u></p>

Total activity duration: **30 minutes**



# About In-Class Segment

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- In-Class segment contain activities for effective learning
- In active learning student goes beyond listening, copying of notes.
- Execution of prescribed procedures.
- Students are required to talk, write, reflect and express their thinking.
- Engage students in higher-order thinking (Analyze-Evaluate-Create).
- Ensure that students get feedback on their work, either from peers or you.
- Ensure to provide summary that connects Out-of-Class and In-Class activities.



# In-class Activity Design -1

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## Learning Objectives of In - Class Activity

At the end of the class, the student will be able to

1. Construct a database for any application area using DDL.(Analyze level)
2. Able to query the database using DML (Analyze level).

## Key Concepts to be covered

1. Use of suitable data types for each fields in application area that is to be used in DDL.
2. Identify the necessary constraints that need to be implemented in DDL.
3. Effective querying using DML



# In-class Activity Design -2

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Active Learning activities that you plan to do

DDL,DML concept clarification using

- *Peer Instruction*

Database construction for any application area using.

- *Think-Pair-Share*

# In-class Activity Design -2



## Peer Instruction strategy- What teacher does

Teacher ask students to fold paper in such a manner that it has provision for showing numbers from 1 to 4 one at a time.

Then teacher post the following two PI questions with four choices at the start of the class and ask students to vote. After that teacher provides the difference between DDL and DDL commands to the students.

**Q1.** Assume that you have a relation for storing the details Employee with certain fields. Which of the following command can be used for replacing a column with another column?

- (1) CREATE
- (2) UPDATE
- (3) MODIFY
- (4) ALTER

# In-class Activity Design -2



## Peer Instruction strategy- What teacher does

Q2. Suppose you have populated Incentives relation with hundred rows that details about the incentives that should be given to top hundred high rating employees per month since 2000. New management took up the firm and decided to stop providing incentives from 2017. Which command will help you to do this?

- (1) REMOVE
- (2) DROP
- (3) DELETE
- (4) CUT



# In-class Activity Design -2

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## Peer Instruction strategy- What student does

- For each question, students will first vote individually by showing the side of folded paper that shows their own option(1 to 4).
- Then they will discuss with peers and reach an agreement.
- Students listen to *instructors explanation* about when to choose DDL and DML commands.



# In-class Activity Design -2



## Think-Pair-Share(TPS) strategy- What teacher does

Construct a database for storing details about patients in a Hospital. The design should be such that it should be able to facilitate data manipulation based on different criteria.

### **Think (~3 minutes)**

*Instruction:*

Think individually and identify the details of patients that need to be stored.

Also identify suitable data types and constraints that should be implemented.

Write all those details in a paper.

# In-class Activity Design -2



## Think-Pair-Share(TPS) strategy- What teacher does

### Pair(~5 minutes)

*Instruction:* Now pair up and compare your answers. Come up with a final design and write the table creation query using the best attributes(properties) with suitable data types and constraints.

While students are pairing and discussing, instructor goes to two or three pairs to see whether they are doing as per instructed.



# In-class Activity Design -2

## Think-Pair-Share(TPS) strategy- What teacher does

### Share(~7 minutes)

Instructor asks a group to share their design with class and see whether there are different answers.

After sharing is done, *instructor gives feedback* on the best design and how constraints and data types are important when selecting fields or properties of database in different application areas.

*In the next iteration of TPS, in the Think(~2minutes) Phase* teacher ask students to think about different criteria based on which patient details need to be manipulated and list it in paper.

In the *pair(~2minutes)* phase teacher ask students to compare their answers to the criteria. In the *share* phase again the different answers are sought and they can fine tune their design. Instructor can give **feedback** on the ideal design and search criteria.



# In-class Activity Design -2

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## **Justify why the above is an active learning strategy**

We can see that in both the strategies described above, students are required to think deeply about the content they familiarized in out-of-class and do higher order thinking. Students are going beyond mere listening and execution of prescribed steps. They get involved and they are interacting with each other and performing analysis.

Here information transmission occurs as out-of-class activity and assimilations happens in in-class activity.

## **Instructor summary**

Students can clarify doubt in their design criteria inside the class itself.

Instructor also provide feedback through peer discussion. Instructor gives a summary for 5 minutes on design selection significance and factors, hence there- by extend the learning.



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# THANK YOU