B.C.A. (5th Semester)

Teaching Schedule

060060506: CC12 Introduction to Server-side Programming

Objective: To understand the Collection and Thread class and to design and develop web based application using Server Side Technologies with Session Management.

Course Outcomes: Upon completion of the course, the student shall be able to

CO1: Develop multithreaded applications and demonstrate the usage of Collection class.

CO2: Recognized the usage of One tier, Two tier, Three tier and Multi-tier architecture to develop web application.

CO3: Apply HTTP Request and Response headers concept to develop a web application.

CO4: Illustrate the usage of database connectivity to access data from MySQL database.

CO5: Demonstrate and use session tracking for a web application.

CO6: Illustrate the use of directives, scripting elements and expression language.

Unit	Sub Unit	No. of Lecture(s)	Topics	Reference Chapter/Additional Reading	Teaching Methodology to be used	Evaluation Parameters
Unit 1 : Collections and Threads						
	1.1	1	Need of Collections	SSP#5,Pageno 92-104	Chalk & Talk	
	1.2	2	List, Set and Map: Benefits over Array - Set: HashSet, LinkedHashSet - List: ArraayList, LinkedList - Map: HashMap, LinkedHashMap	SSP#5,Pageno 92-104	Demonstration	
	1.3	1	Thread life cycle	Notes	Chalk & Talk +	
	1.4	1	Main Thread	SSP#3,Pageno 45-47	PPT	
	1.5	1	Creating Threads: Single and Multiple	SSP#3,Pageno 47-51	Demonstration	

	1.6	2	Thread Priority and Deadlock	SSP#3,Pageno 52-53	Chalk & Talk	
Unit 2 : Architecture						
	2.1	2	Types of Architecture -Single tier, Two tier and Three tier - Multi-tier: Overview	SV#3, Page No:55-61	Chalk & Talk, THINK-PAIR-SHARE	
	2.2 2.2.1	1	Web Server : Responsibilities	SV#3, Page No: 61-66	PPT	**Quiz-1**
	2.2.2	1	Configuration files	SV#3, Page No: 61-66	Class Discussion	
Unit 3 : HTTP Headers and Status Codes						
	3.1	2	Request and Response flow	SSP#20, Page No: 560- 562	Class Discussion	
	3.2	3	Request Headers: Content-Length, Referrer, User-Agent	ML #4, Page No: 98-104	Demonstration	
	3.3	3	Response Headers: Content-Type, Expires, Refresh, Location	ML #7, Page No: 143-154	Chalk & Talk	
	3.4	2	HTTP / 1.1 Status Codes : 100,200,202,204,302,400,404,500	ML #6, Page No: 126-135	PPT	
	3.5	1	Header information and Status code: Setting and Retrieval	ML #6, Page No: 126-135	Chalk & Talk	
	3.6	1	Request Redirection	http://durgasoftvideos.com/advance-java-ratan/	Video	
Unit 4 : Database Connectivity						
	4.1	2	database connection and Configuration	SSP#22,Pageno 629-630	Class Discussion	**Unit Test-1**
	4.2	3	Data Retrieval: Classes and Methods	SSP#22,Pageno 631-634	Chalk & Talk	
	4.3	2	SQL statement: Execution on web page	SSP#22,Pageno 638-641	Demonstration	
Unit 5 : Session Management						

	5.1	1	Purpose	ML #8, Page No: 179-183	Class Discussion	
	5.2	1	URL Rewriting	ML #8, Page No: 182-184	Chalk & Talk	
	5.3	3	Cookies : creating , sending and receiving	ML #8, Page No: 184-190	Demonstration	
	5.4	2	Session management API: Introduction, benefits over Cookies	ML #9, Page No: 201- 207	PPT + Demonstration	
Unit 6 : Web Programming						
	6.1	2	Server side coding embedding in markup language	ML#15, Page No: 435-461 http://durgasoftvideos.com/advance-java-ratan/	Demonstration and Video	**Internal**
	6.2	2	Comment, Expression and Expression language	ML#10, Page No: 232-251	Chalk & Talk	
	6.3	3	Declaration	ML#10, Page No: 230-238	Chalk & Talk	
	6.4	3	Directives	ML#10, Page No: 238-244	Demonstration	

References:

1. Uttam K. Roy, Advanced Java Programming, OXFORD [SSP]
2. HTTP Header Request and Response study from http://docs.oracle.com/javaee/6/api/javax/servlet/http/HttpServletRequest.html and https://docs.oracle.com/javaee/6/api/javax/servlet/http/HttpServletResponse.html respectively.
3. Hall, M., Brown, L. - Core Servlets and Java Server Pages Volume – 1-Pearson Education [ML]
4. Sharanam Shah, Vaishali Shah - Java EE 7 for Beginners - [SV]
5. Schildt, H. - The Complete Reference : Java - Tata McGraw Hill
6. Buyaa, R., et. al. - Object Oriented Programming with Java: Essentials and Application - McGraw Hill.

Course objectives and Course outcomes mapping:

Understand the Collection and Thread class: CO1

Design, develop and deploy web based application: CO2, CO4, CO5 and CO6

Usage of Server Side Technologies along with session management: CO3, CO4, CO5

Course units and Course outcome mapping:

Unit No.	Unit	Course Outcome					
		CO1	CO2	CO3	CO4	CO5	CO6
1	Collections and Multithreaded Programming	✓					
2	Architecture		✓				
3	Managing HTTP headers			✓			
4	Database connectivity			✓	✓		
5	Session Management					✓	
6	Web Programming			✓	✓	✓	✓

Programme Outcomes:

PO1: Proficiency in and ability to identify problems related to computer science as well as design and apply computational knowledge to solve them.
PO2: Ability to design, develop, test and maintain system, component, product or process as per needs and specification.
PO3: Understanding of professional and ethical role and responsibility.
PO4: Recognition of the need for and an ability towards life-long learning
PO5: Knowledge of programming languages, database systems, operating systems, software engineering, Web & Mobile technology and relevant modern issues alongwith strong project development skill.
PO6: Ability to demonstrate the use of modern tools, models and languages to solve problems related to software development
PO7: An ability to communicate effectively with a range of audiences.

Programme Outcomes and Course Outcomes mapping:

Course Outcomes	Program Outcomes						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	✓				✓	✓	
CO2	✓	✓		✓	✓	✓	✓
CO3		✓				✓	

CO4		✓			✓	✓	
CO5		✓	✓	✓	✓		
CO6		✓			✓	✓	

Computing Environment:

A student must have the following computing environment in laboratory and/or on his/her laptop.

- ❖ NetBeans IDE.
- ❖ MySQL Server.

Modes of Transaction (Delivery):

Unit No	Topic Detail	Teaching Approach	PO mapped
2	Types of System Architecture	**THINK-PAIR-SHARE** Pose a question, problem, or scenario to students and ask them to think about it individually for a 10 minutes. Next, allow a student's to form pairs in which they discuss their respective ideas. Invite group to share the results of their paired thinking with the entire class and discussed with other group for 15 minutes.	PO1,PO2, PO4, PO5,PO6, PO7
4	Working with SQL statement on web page	Group will be selected (voluntary) that consisting at list 5 students and they will show the demonstration and help the other students in solving their query.	PO6, PO7

Activities/Practicum:

The following activities shall be carried out by the students:

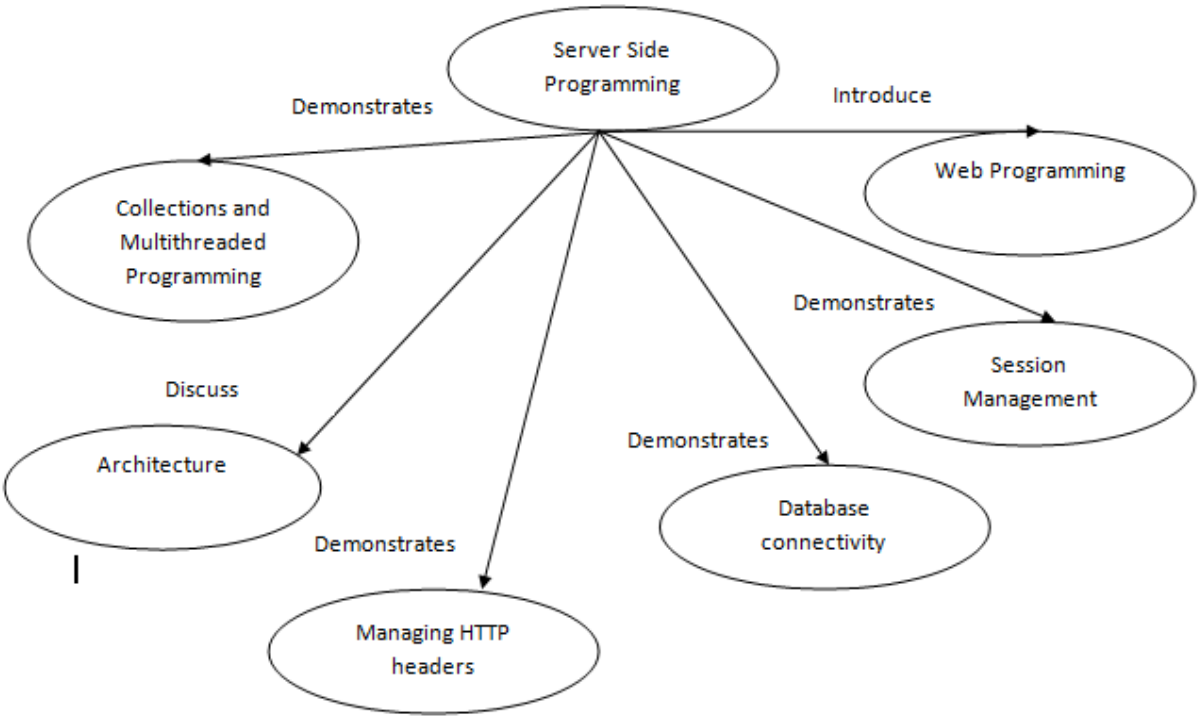
- Demonstrate the installation of an IDE for server-side application development.
- Demonstrate the creation of stored procedure in MySQL database.

The following activities shall be carried out by the teacher:

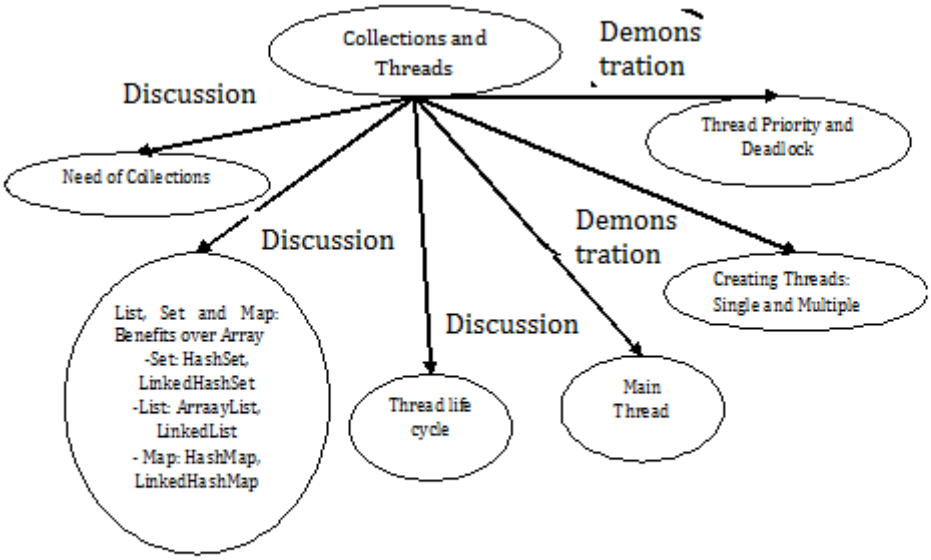
Learner	Activities to be done	PO mapped
For slow learners	Assign one questions after completion of every lecture as assignment. Discussed the answer with them. If student face any difficulty into that question then solve their query.	PO1, PO2, PO5, PO7
For advanced learners	Give advance topics (i.e. custom tag and filter) related to J2EE to students. Students need to implement this topic. By this students can increase their knowledge and technical skill.	PO1, PO2, PO4, PO5, PO6
For all	Implement a simple application in Struts2.	PO1, PO5, PO6

Concept map:

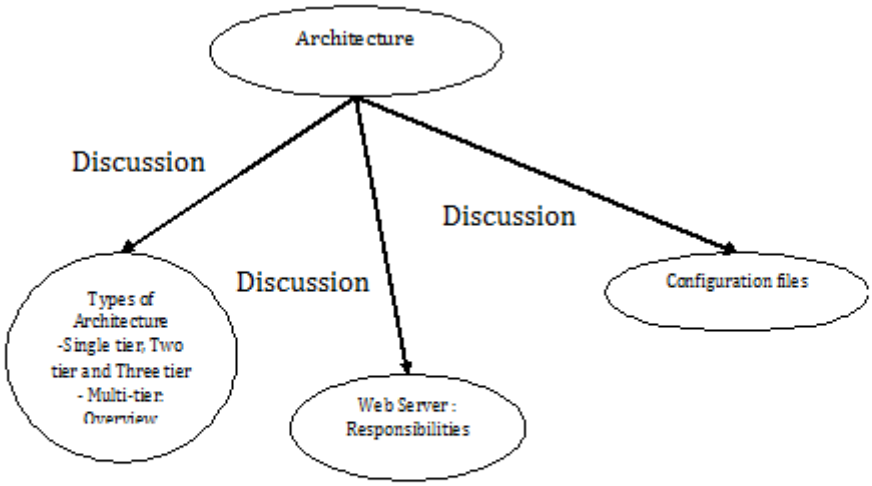
It is a hierarchical / tree based representation of all topics covered under the course. This gives direct / indirect relationship /association among topics as well as subtopics.



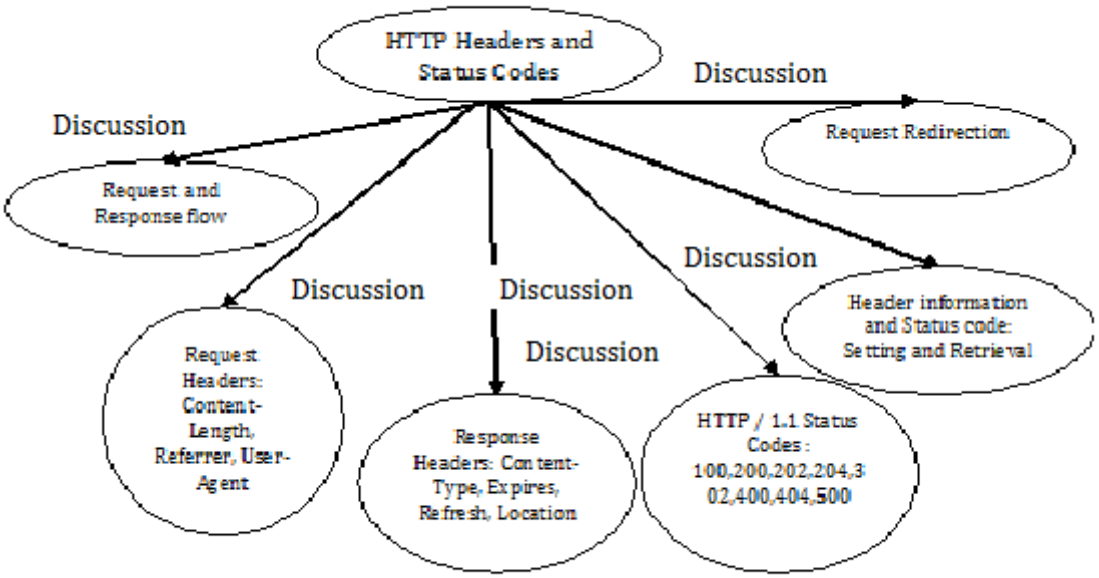
Unit-1:



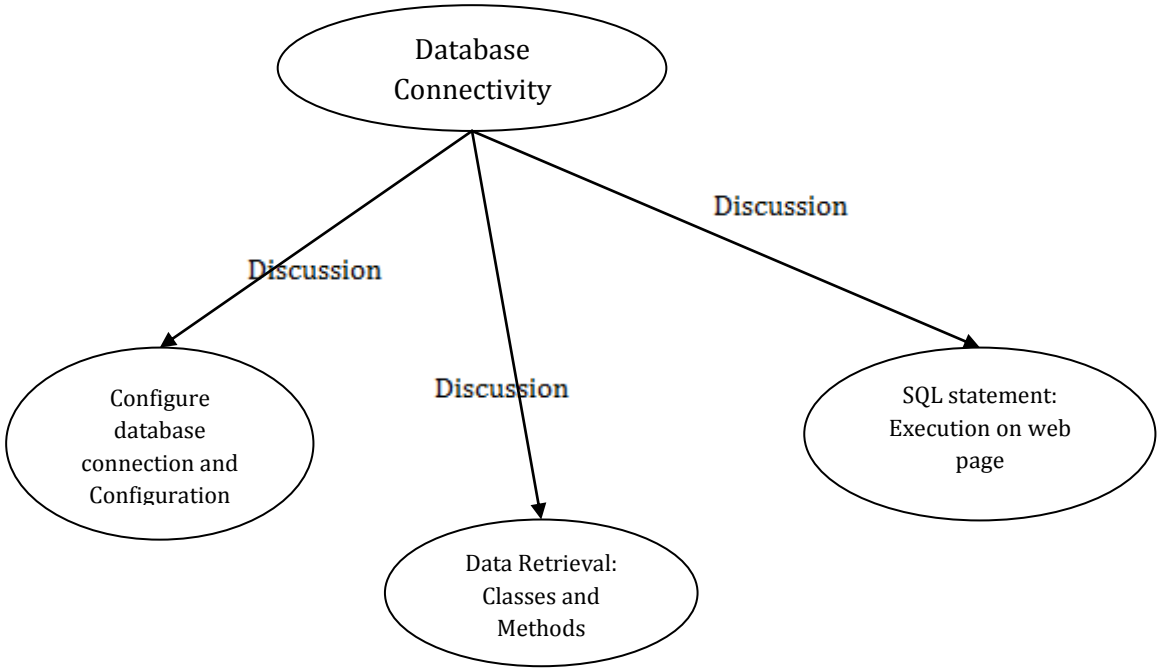
Unit-2:


Architecture
Discussion
Discussion
Discussion
Types of Architecture -Single tier, Two tier and Three tier - Multi-tier Overview
Web Server : Responsibilities
Configuration files

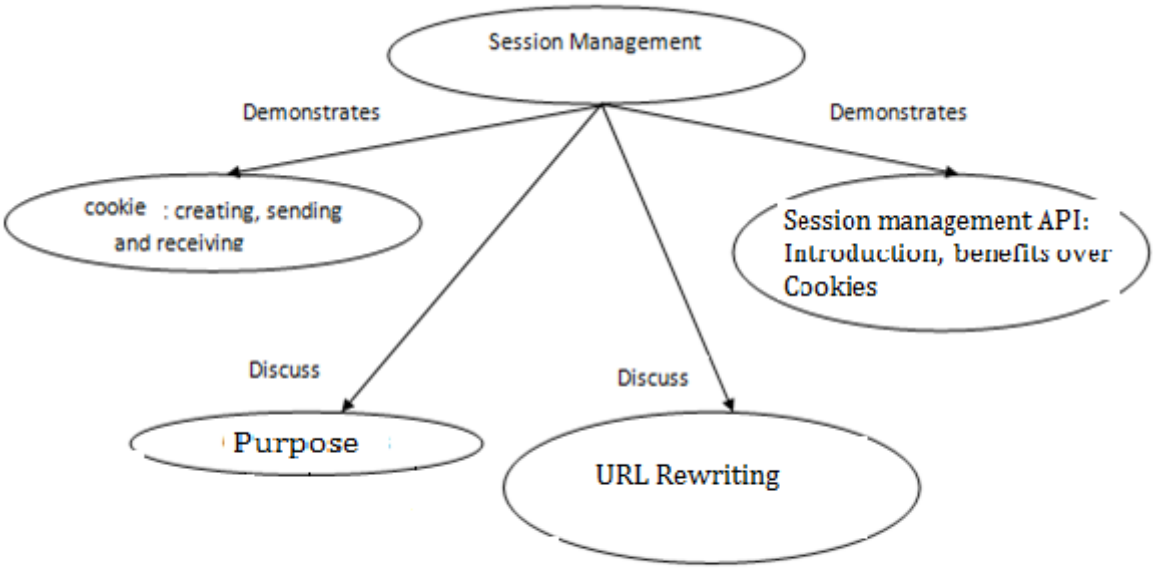
Unit-3:


HTTP Headers and Status Codes
Discussion
Discussion
Request Redirection
Request and Response flow
Discussion
Discussion
Discussion
Discussion
Header information and Status code: Setting and Retrieval
Request Headers: Content-Length, Referrer, User-Agent
Response Headers: Content-Type, Expires, Refresh, Location
HTTP / 1.1 Status Codes : 100,200,202,204,302,400,404,500

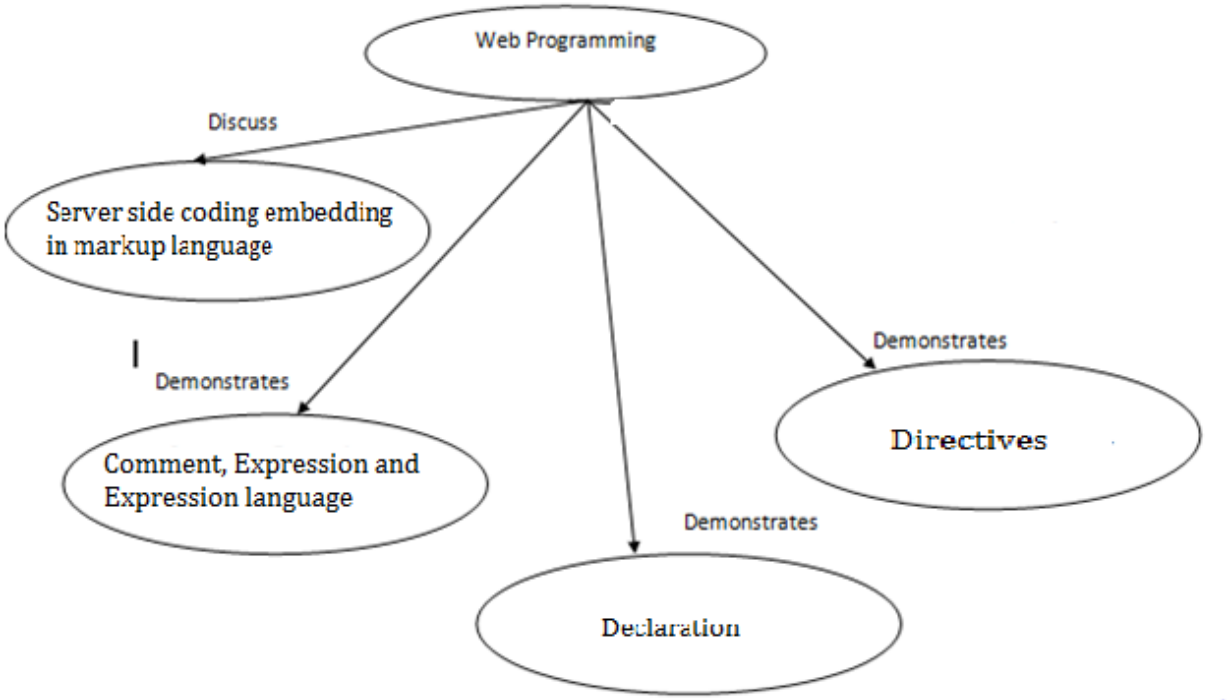
Unit-4:


Database Connectivity
Discussion
Discussion
Discussion
Configure database connection and Configuration
Data Retrieval: Classes and Methods
SQL statement: Execution on web page

Unit-5:


Session Management
Demonstrates
Demonstrates
cookie : creating, sending and receiving
Session management API: Introduction, benefits over Cookies
Discuss
Discuss
Purpose
URL Rewriting

Unit-6:


Web Programming
Discuss
Server side coding embedding in markup language
Demonstrates
Comment, Expression and Expression language
Demonstrates
Directives
Demonstrates
Declaration