JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD.

B. TECH. COMPUTER SCIENCE AND ENGINEERING

IV Year            I Semester

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Network Programming</td>
<td>4+1*</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Web Technologies</td>
<td>4+1*</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Data Warehousing and Data Mining</td>
<td>4+1*</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Advanced Computer Architecture</td>
<td>4+1*</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>ELECTIVE – I :</strong></td>
<td>4+1*</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Embedded Systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mobile Computing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multimedia and Application Development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>ELECTIVE – II :</strong></td>
<td>4+1*</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Software Project Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Advanced Computing Concepts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Network Management Systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Network Programming Lab</td>
<td>-</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Web Technologies Lab</td>
<td>-</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Total       30  6  28
UNIT-I
Introduction to Network Programming: OSI model, Unix standards, TCP and UDP & TCP connection establishment and Format, Buffer sizes and limitation, standard internet services, Protocol usage by common internet application.

UNIT-II
Sockets: Address structures, value – result arguments, Byte ordering and manipulation function and related functions Elementary TCP sockets – Socket, connect, bind, listen, accept, fork and exec function, concurrent servers. Close function and related function.

UNIT-III
TCP client server: Introduction, TCP Echo server functions, Normal startup, terminate and signal handling server process termination, Crashing and Rebooting of server host shutdown of server host.

UNIT-IV
I/O Multiplexing and socket options: I/O Models, select function, Batch input, shutdown function, poll function, TCP Echo server, getsockopt and setsockopt functions. Socket states, Generic socket option IPv6 socket option ICMPV6 socket option IPV6 socket option and TCP socket options.

UNIT-V
Elementary UDP sockets: Introduction UDP Echo server function, lost datagram, summary of UDP example, Lack of flow control with UDP, determining outgoing interface with UDP.

UNIT-VI
Elementary name and Address conversions: DNS, gethost by Name function, Resolver option, Function and IPV6 support, uname function, other networking information.

UNIT-VII
IPC: Introduction, File and record locking, Pipes, FIFOs streams and messages, Name spaces, system IPC, Message queues, Semaphores.

UNIT-VIII
Remote Login: Terminal line disciplines, Pseudo-Terminals, Terminal modes, Control Terminals, rlogin Overview, RPC Transparency Issues.

TEXT BOOKS:

REFERENCES:
1. UNIX Systems Programming using C++ T CHAN, PHI.
2. UNIX for Programmers and Users, 3rd Edition Graham GLASS, King abls, Pearson Education
Objectives:
This course demonstrate an in-depth understanding of the tools and Web technologies necessary for business application design and development. The course covers client side scripting like HTML, JavaScript and server side scripting like servlets, JSPs. And also XML and web servers and database interfacing.

UNIT-I:
HTML Common tags - List, Tables, images, forms, Frames; Cascading Style sheets;

UNIT-II:
Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script

UNIT-III:

UNIT-IV:
Java Beans: Introduction to Java Beans, Advantages of Java Beans, BDK Introspection, Using Bound properties, Bean Info Interface, Constrained properties Persistence, Customizes, Java Beans API, Introduction to EJB's

UNIT-V:

UNIT-VI:

UNIT-VII:
JSP Application Development: Generating Dynamic Content, Using Scripting Elements Implicit JSP Objects, Conditional Processing – Displaying Values Using an Expression to Set an Attribute, Declaring Variables and Methods Error Handling and Debugging Sharing Data Between JSP pages, Requests, and Users Passing Control and Date between Pages – Sharing Session and Application Data – Memory Usage Considerations

UNIT VIII:

TEXT BOOKS:
1. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech (UNIT s 1,2 ,3)
2. The complete Reference Java 2 Fifth Edition by Patrick Naughton and Herbert Schildt. TMH (Chapters: 25) (UNIT 4)
3. Java Server Pages --Hans Bergsten, SPD O'Reilly (UNITs 5,6,7,8)

REFERENCE BOOKS:
1. Programming world wide web-Sebesta Pearson
2. Core SERVLETS AND JAVA SERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty Hall and Larry Brown Pearson
3. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia.
5. Murach’s beginning JAVA JDK 5, Murach, SPD
6. An Introduction to web Design and Programming --Wang-Thomson
8. Programming world wide web-Sebesta,Pearson
10. Beginning Web Programming-Jon Duckett WROX.
DATA WAREHOUSING AND DATA MINING

UNIT - I
Introduction: Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Major issues in Data Mining.
Data Preprocessing: Needs Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation.

UNIT – II
Data Warehouse and OLAP Technology for Data Mining Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Further Development of Data Cube Technology, From Data Warehousing to Data Mining.

UNIT - III
Data Mining Primitives, Languages, and System Architectures: Data Mining Primitives, Data Mining Query Languages, Designing Graphical User Interfaces Based on a Data Mining Query Language Architectures of Data Mining Systems.

UNIT - IV
Concepts Description: Characterization and Comparison: Data Generalization and Summarization-Based Characterization, Analytical Characterization: Analysis of Attribute Relevance, Mining Class Comparisons: Discriminating between Different Classes, Mining Descriptive Statistical Measures in Large Databases.

UNIT - V
Mining Association Rules in Large Databases: Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis, Constraint-Based Association Mining.

UNIT - VI
Classification and Prediction: Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Backpropagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods, Prediction, Classifier Accuracy.

UNIT - VII
Cluster Analysis Introduction: Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis.

UNIT - VIII
Mining Complex Types of Data: Multimensionsal Analysis and Descriptive Mining of Complex, Data Objects, Mining Spatial Databases, Mining Multimedia Databases, Mining Time-Series and Sequence Data, Mining Text Databases, Mining the World Wide Web.

TEXT BOOKS:
1. Data Mining – Concepts and Techniques - JIAWEI HAN & MICHELINE KAMBER Harcourt India.

REFERENCES:
1. Data Mining Introductory and advanced topics –MARGARET H DUNHAM, PEARSON EDUCATION
2. Data Mining Techniques – ARUN K PUJARI, University Press.
4. Data Warehousing Fundamentals – PAULRAJ PONNAIAH WILEY STUDENT EDITION.
5. The Data Warehouse Life cycle Tool kit – RALPH KIMBALL WILEY STUDENT EDITION.
ADVANCED COMPUTER ARCHITECTURE

Unit - I
Fundamentals of Computer design- Technology trends- cost- measuring and reporting performance quantitative principles of computer design.

Unit - II
Instruction set principles and examples- classifying instruction set- memory addressing- type and size of operands- addressing modes for signal processing-operations in the instruction set- instructions for control flow- encoding an instruction set- the role of compiler

Unit - III
Instruction level parallelism (ILP)- over coming data hazards- reducing branch costs –high performance instruction delivery- hardware based speculation- limitation of ILP

Unit - IV
ILP software approach- compiler techniques- static branch protection - VLIW approach - H.W support for more ILP at compile time- H.W verses S.W Solutions

Unit - V
Memory hierarchy design- cache performance- reducing cache misses penalty and miss rate – virtual memory- protection and examples of VM.

Unit - VI
Multiprocessors and thread level parallelism- symmetric shared memory architectures- distributed shared memory- Synchronization- multi threading.

Unit - VII
Storage systems- Types – Buses - RAID- errors and failures- bench marking a storage device- designing a I/O system.

Unit - VIII
Inter connection networks and clusters- interconnection network media – practical issues in interconnecting networks- examples – clusters- designing a cluster.

TEXT BOOK :

REFERENCES :
3. Parallel Computer Architecture, A Hardware / Software Approach, David E. Culler, Jaswinder Pal singh with Anoop Gupta, Elsevier
Unit - I

Unit - II

Unit - III

Unit - IV
Arithmetic Operations, Decimal Arithmetic, Jump and Call Instructions, Further Details on Interrupts. (Chapter 7 and 8 from Text Book 2, Ayala)

Unit - V
Applications: Interfacing with Keyboards, Displays, D/A and A/D Conversions, Multiple Interrupts, Serial Data Communication. (Chapter 10 and 11 from Text Book 2, Ayala).

Unit - VI
Introduction to Real-Time Operating Systems: Tasks and Task States, Tasks and Data, Semaphores, and Shared Data; Message Queues, Mailboxes and Pipes, Timer Functions, Events, Memory Management, Interrupt Routines in an RTOS Environment. (Chapter 6 and 7 from Text Book 3, Simon).

Unit - VII

Unit - VIII
Introduction to advanced architectures: ARM and SHARC, Processor and memory organization and Instruction level parallelism; Networked embedded systems: Bus protocols, I2C bus and CAN bus; Internet-Enabled Systems, Design Example-Elevator Controller. (Chapter 8 from Text Book 1, Wolf).

TEXT BOOKS:
1. Computers as Components-principles of Embedded computer system design, Wayne Wolf, Elsevier.

REFERENCES:
1. Embedding system building blocks, Labrosse, via CMP publishers.
2. Embedded Systems, Raj Kamal, TMH.
3. Micro Controllers, Ajay V Deshmukhi, TMH.
5. Microcontrollers, Raj kamal, Pearson Education.
6. An Embedded Software Primer, David E. Simon, Pearson Education.
UNIT - I
GSM: Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security, and New data services.

UNIT - II
(Wireless) Medium Access Control: Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA.

UNIT - III
Mobile Network Layer: Mobile IP (Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations), Dynamic Host Configuration Protocol (DHCP).

UNIT - IV
Mobile Transport Layer: Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission /time-out freezing, Selective retransmission, Transaction oriented TCP.

UNIT - V
Database Issues: Hoarding techniques, caching invalidation mechanisms, client server computing with adaptation, power-aware and context-aware computing, transactional models, query processing, recovery, and quality of service issues.

UNIT - VI
Data Dissemination: Communications asymmetry, classification of new data delivery mechanisms, push-based mechanisms, pull-based mechanisms, hybrid mechanisms, selective tuning (indexing) techniques.

UNIT - VII
Mobile Ad hoc Networks (MANETs): Overview, Properties of a MANET, spectrum of MANET applications, routing and various routing algorithms, security in MANETs.

UNIT - VIII
Protocols and Tools: Wireless Application Protocol-WAP, (Introduction, protocol architecture, and treatment of protocols of all layers), Bluetooth (User scenarios, physical layer, MAC layer, networking, security, link management) and J2ME.

TEXT BOOKS:

REFERENCES:
UNIT - I

UNIT - II
Fundamental concepts in video and digital audio: Types of video signals, analog video, digital video, digitization of sound, MIDI, quantization and transmission of audio.

UNIT - III
Action Script I: ActionScript Features, Object-Oriented ActionScript, Datatypes and Type Checking, Classes, Authoring an ActionScript Class.

UNIT - IV
Action Script II: Inheritance, Authoring an ActionScript 2.0 Subclass, Interfaces, Packages, Exceptions.

UNIT - V
Application Development: An OOP Application Frame work, Using Components with ActionScript MovieClip Subclasses.

UNIT - VI

UNIT - VII
Basic Video Compression Techniques: Introduction to video compression, video compression based on motion compensation, search for motion vectors, MPEG, Basic Audio Compression Techniques.

UNIT - VIII

TEXT BOOKS:
1. Fundamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson Education.
2. Essentials ActionScript 2.0, Colin Moock, SPD O,REILLY.

REFERENCES:
1. Digital Multimedia, Nigel chapman and jenny chapman, Wiley-Dreamtech
5. Multimedia Basics by Weixel Thomson
6. Multimedia Technology and Applications, David Hilman , Galgotia
SOFTWARE PROJECT MANAGEMENT
(Elective-II)

UNIT - I
Conventional Software Management: The waterfall model, conventional software Management performance.


UNIT - II

The old way and the new: The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process.

UNIT - III
Life cycle phases: Engineering and production stages, inception, Elaboration, construction, transition phases.

Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.

UNIT - IV
Model based software architectures: A Management perspective and technical perspective.


UNIT - V
Checkpoints of the process: Major mile stones, Minor Milestones, Periodic status assessments.

Iterative Process Planning: Work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning.

UNIT - VI


UNIT - VII
Project Control and Process instrumentation: The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation.

Tailoring the Process: Process discriminants.

UNIT - VIII
Future Software Project Management: Modern Project Profiles, Next generation Software economics, modern process transitions.

Case Study: The command Center Processing and Display system- Replacement (CCPDS-R)

TEXT BOOK:

REFERENCES:
2. Software Project Management, Joel Henry, Pearson Education.
UNIT I
Grid Computing: Data & Computational Grids, Grid Architectures and its relations to various Distributed Technologies.

UNIT II
Autonomic Computing, Examples of the Grid Computing Efforts (IBM).

UNIT III
Cluster setup & its Advantages, Performance Models & Simulations; Networking Protocols & I/O, Messaging systems.

UNIT IV
Process scheduling, Load sharing and Balancing; Distributed shared memory, parallel I/O.

UNIT V
Example cluster System - Beowulf; Cluster Operating systems: COMPaS and NanOS.

UNIT VI
Pervasive Computing concepts & Scenarios; Hardware & Software; Human - machine interface.

UNIT VII
Device connectivity; Java for Pervasive devices; Application examples.

UNIT VIII
Classical Vs Quantum logic gates; One, two & three QUbit Quantum gates; Fredkin & Toffoli gates; Quantum circuits; Quantum algorithms.

TEXT BOOK:

REFERENCES:
UNIT - I

UNIT - II

UNIT - III

UNIT - IV

UNIT - V
SNMP Management: RMON: What is Remote Monitoring? , RMON SMI and MIB, RMON1, RMON2, ATM Remote Monitoring, A Case Study of Internet Traffic Using RMON

UNIT - VI

UNIT - VII

UNIT - VIII

TEXT BOOK:
1. Network Management, Principles and Practice, Mani Subrahmanian, Pearson Education.

REFERENCES:
1. Network management, Morris, Pearson Education.
Objectives:
- To teach students various forms of IPC through Unix and socket Programming

Recommended Systems/Software Requirements:
- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space LAN Connected
- Any flavour of Unix / Linux

Week 1.
Implement the following forms of IPC.
a) Pipes
b) FIFO

Week 2.
Implement file transfer using Message Queue form of IPC

Week 3.
Write a programme to create an integer variable using shared memory concept and increment the variable simultaneously by two processes. Use senphores to avoid race conditions

Week 4.
Design TCP iterative Client and server application to reverse the given input sentence

Week 5.
Design TCP iterative Client and server application to reverse the given input sentence

Week 6.
Design TCP client and server application to transfer file

Week 7.
Design a TCP concurrent server to convert a given text into upper case using multiplexing system call “select”

Week 8.
Design a TCP concurrent server to echo given set of sentences using poll functions

Week 9.
Design UDP Client and server application to reverse the given input sentence

Week 10
Design UDP Client server to transfer a file

Week 11
Design using poll client server application to multiplex TCP and UDP requests for converting a given text into upper case.

Week 12
Design a RPC application to add and subtract a given pair of integers

Reference Book:
**Objective:**
To create a fully functional website with mvc architecture. To Develop an online Book store using we can sell books (Ex: amazon.com).

**Hardware and Software required:**
1. A working computer system with either Windows or Linux
2. A web browser either IE or firefox
3. Tomcat web server and Apache web server
4. XML editor like Altova Xml-spy [www.Altova.com/XMLSpy – free], Stylusstudio, etc.,
5. A database either Mysql or Oracle
6. JVM (Java virtual machine) must be installed on your system
7. BDK (Bean development kit) must be also be installed

**Week-1:**
Design the following static web pages required for an online book store web site.

1) **HOME PAGE:**
The static home page must contain three frames.

**Top frame:** Logo and the college name and links to Home page, Login page, Registration page, Catalogue page and Cart page (the description of these pages will be given below).

**Left frame:** At least four links for navigation, which will display the catalogue of respective links.
For e.g.: When you click the link “CSE” the catalogue for CSE Books should be displayed in the Right frame.

**Right frame:** The pages to the links in the left frame must be loaded here. Initially this page contains description of the web site.

<table>
<thead>
<tr>
<th>Logo</th>
<th>Web Site Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>Login</td>
</tr>
<tr>
<td>CSE</td>
<td>ECE</td>
</tr>
</tbody>
</table>

![Fig 1.1](image-url)

2) **LOGIN PAGE:**
This page looks like below:
3) CATALOGUE PAGE:
The catalogue page should contain the details of all the books available in the web site in a table. The details should contain the following:

2. Author Name.
3. Publisher.
5. Add to cart button.

<table>
<thead>
<tr>
<th>Book Title</th>
<th>Author</th>
<th>Publisher</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>XML Bible</td>
<td>Winston</td>
<td>Wiley</td>
<td>$40.5</td>
</tr>
<tr>
<td>AI</td>
<td>S.Russel</td>
<td>Princeton hall</td>
<td>$63</td>
</tr>
<tr>
<td>Java 2</td>
<td>Watson</td>
<td>BPB publications</td>
<td>$35.5</td>
</tr>
<tr>
<td>HTML in 24 hours</td>
<td>Sam Peter</td>
<td>Sam publication</td>
<td>$50</td>
</tr>
</tbody>
</table>

Note: Week 2 contains the remaining pages and their description.

Week-2:
4) CART PAGE:
The cart page contains the details about the books which are added to the cart. The cart page should look like this:

<table>
<thead>
<tr>
<th>Logo</th>
<th>Web Site Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Home</td>
</tr>
<tr>
<td></td>
<td>Login</td>
</tr>
<tr>
<td></td>
<td>Registration</td>
</tr>
<tr>
<td></td>
<td>Catalogue</td>
</tr>
<tr>
<td></td>
<td>Cart</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CSE</th>
<th>ECE</th>
<th>EEE</th>
<th>CIVIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book name</td>
<td>Price</td>
<td>Quantity</td>
<td>Amount</td>
</tr>
<tr>
<td>Java 2</td>
<td>$35.5</td>
<td>2</td>
<td>$70</td>
</tr>
<tr>
<td>XML bible</td>
<td>$40.5</td>
<td>1</td>
<td>$40.5</td>
</tr>
</tbody>
</table>

Total amount - $130.5

5) REGISTRATION PAGE:

Create a "registration form" with the following fields:

1) Name (Text field)
2) Password (password field)
3) E-mail id (text field)
4) Phone number (text field)
5) Sex (radio button)
6) Date of birth (3 select boxes)
7) Languages known (check boxes – English, Telugu, Hindi, Tamil)
8) Address (text area)

WEEK 3:

VALIDATION:

Write JavaScript to validate the following fields of the above registration page.

1. Name (Name should contain alphabets and the length should not be less than 6 characters).
2. Password (Password should not be less than 6 characters length).
3. E-mail id (should not contain any invalid and must follow the standard pattern name@domain.com)
4. Phone number (Phone number should contain 10 digits only).

Note: You can also validate the login page with these parameters.

WEEK 4:

Design a web page using CSS (Cascading Style Sheets) which includes the following:

1) Use different font, styles:
   In the style definition you define how each selector should work (font, color etc.). Then, in the body of your pages, you refer to these selectors to activate the styles.

For example:

```html
<HTML>
<HEAD>
<style type="text/css">
B.headline {color:red; font-size:22px; font-family:arial; text-decoration:underline}
</style>
</HEAD>
```
2) Set a background image for both the page and single elements on the page. You can define the background image for the page like this:

```
BODY {background-image:url(myimage.gif);}
```

3) Control the repetition of the image with the background-repeat property. 
As background-repeat: repeat 
Tiles the image until the entire page is filled, just like an ordinary background image in plain HTML.

4) Define styles for links as 
A:link  
A:visited  
A:active  
A:hover
Example:
```
<style type="text/css">
A:link {text-decoration: none}
A:visited {text-decoration: none}
A:active {text-decoration: none}
A:hover {text-decoration: underline; color: red;}
</style>
```

5) Work with layers:  
For example:
```
LAYER 1 ON TOP:
<div style="position: relative; font-size:50px; z-index:2;" >LAYER 1</div>
</div>
LAYER 2 ON TOP:
<div style="position: relative; font-size:50px; z-index:3;" >LAYER 1</div>
</div>
```
6) Add a customized cursor:
   Selector (cursor:value)
   For example:
   ```html
   <html>
   <head>
   <style type="text/css">
   .xlink {cursor:crosshair}
   .hlink{cursor:help}
   </style>
   </head>
   <body>
   <b>
   <a href="mypage.htm" class="xlink">CROSS LINK</a>
   <br>
   <a href="mypage.htm" class="hlink">HELP LINK</a>
   </b>
   </body>
   </html>
   ```

**Week-5:**

Write an XML file which will display the Book information which includes the following:

1) Title of the book
2) Author Name
3) ISBN number
4) Publisher name
5) Edition
6) Price

Write a Document Type Definition (DTD) to validate the above XML file.

Display the XML file as follows.

The contents should be displayed in a table. The header of the table should be in color GREY. And the Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns.

Use XML schemas XSL and CSS for the above purpose.

Note: Give at least for 4 books. It should be valid syntactically.

Hint: You can use some xml editors like XML-spy

**Week-6:**

**VISUAL BEANS:**

Create a simple visual bean with a area filled with a color. The shape of the area depends on the property shape. If it is set to true then the shape of the area is Square and it is Circle, if it is false.

The color of the area should be changed dynamically for every mouse click. The color should also be changed if we change the color in the "property window”.

**Week-7:**

1) Install TOMCAT web server and APACHE.
   While installation assign port number 4040 to TOMCAT and 8080 to APACHE. Make sure that these ports are available i.e., no other process is using this port.

2) Access the above developed static web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root.
   Access the pages by using the urls: [http://localhost:4040/rama/books.html](http://localhost:4040/rama/books.html) (for tomcat)

**Week-8:**

**User Authentication:**

Assume four users user1, user2, user3 and user4 having the passwords pwd1, pwd2, pwd3 and pwd4 respectively. Write a servlet for doing the following.

1. Create a Cookie and add these four user id’s and passwords to this Cookie.
2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies.
If he is a valid user (i.e., user-name and password match) you should welcome him by name(user-name) else you should display "You are not an authenticated user". Use init-parameters to do this. Store the user-names and passwords in the webinf.xml and access them in the servlet by using the getInitParameters() method.

Week-9:
Install a database (Mysql or Oracle).
Create a table which should contain at least the following fields: name, password, email-id, phone number(these should hold the data from the registration form).
Practice 'JDBC' connectivity.
Write a java program/servlet/JSP to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.
Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page (week2).

Week-10:
Write a JSP which does the following job:
Insert the details of the 3 or 4 users who register with the web site (week9) by using registration form. Authenticate the user when he submits the login form using the user name and password from the database ( similar to week8 instead of cookies).

Week-11:
Create tables in the database which contain the details of items (books in our case like Book name, Price, Quantity, Amount ) of each category. Modify your catalogue page (week 2) in such a way that you should connect to the database and extract data from the tables and display them in the catalogue page using JDBC.

Week-12:
HTTP is a stateless protocol. Session is required to maintain the state.
The user may add some items to cart from the catalog page. He can check the cart page for the selected items. He may visit the catalogue again and select some more items. Here our interest is the selected items should be added to the old cart rather than a new cart. Multiple users can do the same thing at a time(i.e., from different systems in the LAN using the ip-address instead of localhost). This can be achieved through the use of sessions. Every user will have his own session which will be created after his successful login to the website. When the user logs out his session should get invalidated (by using the method session.invalidate() ).

Modify your catalogue and cart JSP pages to achieve the above mentioned functionality using sessions.