

12 Feb 2021

E-commerce

Smart Cards: i) Smart Cards are used as a secure and convenient way to conduct e-commerce business or transactions. Smart card is a credit card-sized plastic card that contains a microchip that stores information securely and can perform cryptographic functions. Smart cards are more secure than traditional credit cards because the microchip provides additional security features such as encryption and the ability to generate dynamic authentication codes.

Credit Cards: This is the most widely used cards / e-payment method. Credit cards are a popular electronic payment method that allows users to make purchases without the need for cash. A credit card is a payment card that allows consumers to borrow some money from a financial institution, typically a bank, to purchase or pay for services. The amount borrowed is then repaid usually with some interest over time.

Credit cards are also a widely used payment method for both in person and online Transactions.

Customer provide their card details including card no., expiration date and cvv code. to make online transaction successful.

Debit Card: This is another most widely used e-payment method for e-commerce transaction.

Debit cards are popular electronic payment methods that allows users to make purchases.

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use to make
without physical contact the need of cash or other online
transactions. A debit card is a payment card that allows
consumers to access funds in their checking account to
make purchases or withdraw cash. When a consumer uses
a debit card, the funds are immediately deducted
from their account balance. Unlike credit cards,
debit cards do not allow consumers to borrow money
from a financial institution (bank).

Instead they can only spend the funds that are
available in their account. This can be a useful tool
for managing expenses and avoiding debt. Online
transaction occurs in person, has CVV, no card expiration
date.

Mobile payments system:

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Web Technology

<html> <head> </head> <body>

<form action = "Servlet" method = "post">

Name: <input type = "text" name = "username">

Password: <input type = "text" name = "userpass">

<input type = "submit" value = "login" /> </form> </body> </html>

Name:

Password:

Submit

2. Now to create web.xml file.

```
< servlet >
< servlet-name > MyServlet < /servlet - Name >
< servlet-class > P67 - MyServlet < /servlet - Class >
< /servlet >
< servlet-mapping >
< servlet-name > MyServlet < /servlet - Name >
< url-pattern > /servlet1 < /url - pattern >
< /servlet-mapping >
```

```
Public class MyServlet extends HttpServlet {
    public void doGet(HttpServletRequest request,
                      HttpServletResponse response) {
```

}

```
    Public void doPost(HttpServletRequest request, HttpServletResponse response) {
        PrintWriter out = res.getWriter();
        out.print("<h> login page </h>");
        String user = req.getParameter("username");
        String pwd = req.getParameter("password");
        If (user == "Admin" && pwd == "admin") {
            out.println("<p> login successfully </p>");
        } Else {
            out.println("<p> login failed </p>");
```

Steps:

Index.html → To servlet container → Then Invoke My servlet.
action: servlet1.

Goto xml

See urlpattern.

In url mapping
checkname

MyServlet

Now out is object of PrintWriter.
the getwriter obj() is transferred to out.
by out.println and .print () will be used to send messages.

Make Registration form: Give the hyperlink to Register form.

1. index.html

<html><

Name: <input type="text"/>	404 405.
Address: <input type="text"/>	
Email: <input type="text"/>	
Age: <input type="text"/>	
Gender: <input type="text"/>	
<input type="submit" value="Submit"/>	

Reg form:

login	
	Reg form.

user swing tp2 Project
Pass All crud Operations
 LogIn

The request dispatcher object can be used to include the response of another servlet by calling the include method or forward the request to another servlet by calling the forward method.

Request dispatcher Include method - Include method of request dispatcher object include the response of another servlet into the calling servlet. It included path elements to the request attribute so that included servlet can access the included path element.

Forward method - Forward method of request dispatcher forward request to navigate resources such as target servlet. This method can be invoked by the servlet while servicing the request when no output has been committed. The forward method perform the following task such as, it check the source servlet has obtained the response stream and output data exist in the response buffer.

Change the path element of request object to the forward path element.

Difference between include method and forwarded method. The forwarded method allow the target servlet to set the response Header. However it cannot do this with the include method. In the forwarded method, the source servlet cannot generate the response content but it can do so with the

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include method

In the forward method after the dispatching process is complete, the source servlet cannot add any response content.

However with the include method, it can.

E-commerce

Mobile Payment System

A typical mobile payment system includes e-wallet or digital wallet that helps in payment transaction with the help of mobile.

An e-wallet is a software digital tool that allows individuals to securely store, manage and transact various forms of digital currency and payment method.

e-wallet have become increasingly popular as a convenient and efficient way to make digital and mobile payments successful.

e-wallet can store credit card information, debit card details and bank account information that ultimately helps in Money Transaction successfully through mobile.

A mobile payment system allows users to make payments using their mobile devices normally by scanning QR code or using NFC Technology.

The common examples of mobile payment systems are Google Pay, PhonePe, Apple Pay, etc. Samsung Pay, WalletPay (IOS).

Electronic Fund Transfer or Bank transfers:
These systems allow for the direct transfer of funds between bank accounts either as one-time payments or recurring payments. Examples of bank transfers and direct debit systems include various technologies in other countries such as automated clearing house Technology in America, and single Euro payments area (SEPA) in European Union.

In ACH payment system (funds are transferred directly from one Bank Account to another typically for online Bill payments. EFT System is widely used by the Business world to transfer Amount from one bank to another safely and securely

Electronic Cheques: E-cheques are digital versions of paper cheques. They are used for online payments and are commonly used for paying bills.

E-cheques are normally provided by the bank in which user has an account.

E-cheques can be simply used as a cheque and can be transferred from one bank account to another payment system even as attachment.

e-cash is a digital representation of physical currency that can be used for electronic transaction. It does not have a physical counterpart rather it exists only in electronic form. e-cash allows for online payments, purchases, transfer of money etc. similar as a value of physical cash. e-cash is stored on their devices or accounts.

E-cash Systems are suitable for microtransactions with full feature of safeguards.

QR Code Payments: This is one of the very easy mobile payments system used by young generation in which payments are done by scanning QR codes with their mobile phone apps.

This method is mostly suitable for small businesses transaction.

Biometric Payments: Some advance payment system use biometric data such as finger prints or eye retina or facial recognition to authenticate users for transaction.

Mobile Banking Apps: YONO, many banks provide mobile apps that allow customers.

to check balances, to transfer money and make payments from their mobile devices with the help of banking apps.

eg: YONO is Banking Apps of SBT.

Online Banking: Many Banks offer online Banking Services. (Internet Banking) that allow customers to pay bills, transfer money, and manage their accounts with the help of Internet.

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Advantage of E-payment System:

- (i) One of the key advantages of E-Payment System is their speed and convenience. In this mode transactions can be completed in fraction of second or minutes. quickly and securely without the need to physically visit a bank or carry cash.
- (ii) E-payment system also offer to send money from one location to another Location Geographically Apart. This method of transferring money protect against fraud and theft of money.
- (iii) E-Payment System makes a certified proof of money Transfer between two bodies.
- (iv) In this way there is no need of Bank or Financial Institution anywhere during the payment Transfer.
- (v) This System helps in transferring money between the bodies with Proper authentication and Validation

Drawbacks of E-Payments System:

- (i) E-payments System may be vulnerable to hacking or other cyber attacks.
- (ii) They may require personal identity or financial information to disclose before transmitting the money.
- (iii) There is need of internet during money transfer. That is without internet money transfer is not possible.
- (iv) It is not suitable for a lay person. That is a person with knowledge of Internet, Apps etc. may require formoney Transferring.
- (v) It also takes few charges for transfer the money.

ISSUES In E-COMMERCE, or (Challenges of E-Commerce):

While an E-commerce Site is opened 1st time. Then there may be several types of issues or challenges faced by the organisation or company that affects the convinience and accessibility of the company by the users or even the system. These challenges are of following types:

- (i) Social Issues of E-commerce.
- (ii) Ethical Issues of E-commerce.
- (iii) Legal Issues of E-commerce.
- (iv) Political issues of E-commerce.

Social Issues of E-commerce:

There are several social issues arise after E-commerce emergence. But the common **iIBM ESTABLISHED in 1979**

Social issues are -

- (i) One of the main social issue related to e-commerce is the impact on local businesses and traditional brick and mortar stores. The rise of online shopping has significantly changed the retail stores and leading to the closure of many small businesses that struggle to compete with large e-commerce platforms.

(ii) Be cont.

15-2-2024

JSP: Java Server Pages.

Q1 Difference b/w JSP & Servlet

Q2 JSP Objects, Directives, Session setup

Q3 Lifecycle of JSP.

What do you mean by JSP? What are the benefits of using JSP?

JSP is a standard Java extension used to simplify the creation and management of dynamic web pages. JSP allows us to separate the dynamic content of a webpage from its static presentation content.

JSP consists of HTML tags and special tags known as JSP tags. HTML Tags are used to create static page content and JSP tags are used to add dynamic content to webpage. That means writing Java code within HTML is known as Java Server Pages.

JSP pages are compiled into Java Servlet by a JSP translator and then Java Servlet is compiled and executed to generate the output for the browser.

The following benefits of JSP are as follows:

- (i) web page is created by using JSP are portable & used easily across multiple platforms and web server without making any changes.
- (ii) Programming in JSP is easier than servlet because of the introduction of tag based approach in JSP.

(iii) JSP Pages are automatically compiled by the web server such as Tomcat and weblogic.

(iv) One of the most important benefit is the separation of business logic from the presentation logic. The Tag Handler Classes or Java Beans contain business logic whereas a JSP Page contains presentation logic. The separation of business and presentation logic makes an application more secure and reusable.

Program:

```
<%@ page import="java.util.Date" %>  
<html><head> <title>First JSP </title> </head>  
<body> <% out.println(new Date().toString()); %>  
    </body>  
</html>
```

Advantages Difference between JSP and Servlet.

The following points are preferable for JSP over servlet:
both JSP and servlet are the server side component used
to generate dynamic HTML Pages. and it is automatically
handled by JSP container is part of web container.

Servlet cannot be accessed directly and have to be 1st
mapped in web.xml whereas a JSP page can be accessed
directly as a simple html pages.

We need to recompile your servlet for every single changes.
In the source code of the servlet whereas in case of JSP
recompilation is not required. Since JSP are automatically
handled by the web container for any update in their
code.

Most of the content of a page is static

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and different component so not need to have a good knowledge of Java for developers.

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E-commerce:

Social Issues:

- (i) Another social issue is the digital divide and unequal access to e-commerce which refers to the gap between individuals who have access to the internet.
- (ii) Privacy and Data security are also the major concern regarding e-commerce.
- (iii) An e-commerce site can also contribute certain environmental issues by providing packaging waste, use of non-bio-degradable materials etc.
- (iv) Additionally The transportation also involve in delivering goods, contributes carbon emission and other air pollutants in the environment.
- (v) Ethical issues of e-commerce: There are general ethical issues arise after the E-commerce emergence. Some common are:
 - ① one ethical issue associated with E-commerce is the exploitation of the workers in the supply chain. many e-commerce platforms gives low wages, sometime labour abuses, taking long hours working time, unsafe working conditions, inadequate payment, violation of Labour rights and

protection.

- (b) Another ethical concern is the environmental impact of e-commerce. In which there is no alternative to use biodegradable materials in their processing work and always try to use cheap and non-bio-degradable materials.
- (c) Another ethical concern is the issue of price discrimination and algorithmic bias, that is there are different terms and conditions for different geographical locations.
- (d) Another ethical issue is the violation of intellectual property rights and the sale of fake or unauthorised products.
- (e) political issue and legal issue to be contd.

16-02-2024

Session Management in Web Technology

What is HTTP Session and define the various session management techniques (URL-Rewriting, Hidden fields, cookies, session object).

Session management is a mechanism for maintaining state across multiple HTTP requests. This is managed by web container.

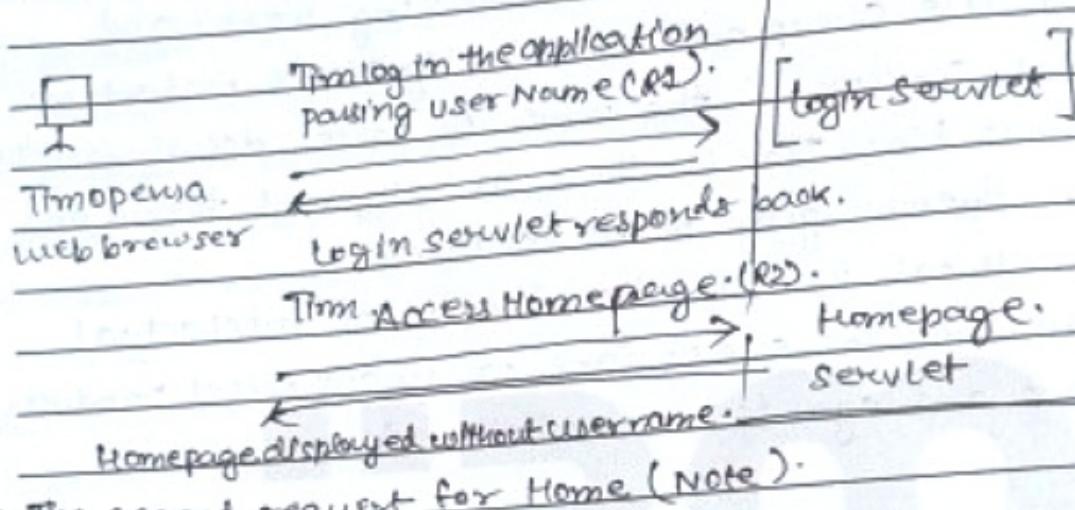
In simple words it is a technique to hold some values passed by the user across multiple HTTP request arising out from a single browser instance.

Session Life cycle is managed for each web browser instance opened and it exists till the browser is closed or till the session time out.

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(Set in the server configurations.)

without implementing session concept while developing web application.



web container:

begin servlet → ^{servlet stores the} _{username in session.}

Homepage Servlet.

Session.

User Name = "Tim"

Though the user name
is NOT in the request
it can print the user
name by accessing the
session.

In the above example if Tim opens a new browser and access Homepage servlet the username cannot be accessed since a new ^{session} HTTP object is created.

HTTP is a stateless protocol. So if developers need to develop pages where he needs to maintain the application's state across multiple request he can use session.

For example he can store the following information.

State variable at first call value of the slot #1

LoginName, user's state/city, user ID number etc.

How is Session tracked for a user?

Each user session is tracked by unique id called JSESSIONID. This is similar to how an employee is identified in an organization using employee id.

JSESSIONID will be generated the first time the user visits a site.

JSESSIONID will be generated by each browser instance.

For eg. When a user tom access a site www.cognizant.com a JSESSIONID will be created say "101". When tom opens another browser and access the same site www.cognizant.com a new JSESSIONID say "102" will be created to track that session.

For subsequent requests to the same site this ID will be used to track the user using tracking techniques like cookie, encoded url etc.

Session object:

Is a container used for storing user states in server.
The session object lifecycle is maintained by web container.
The Servlet API HTTP Session interface provides features
for session tracking: HTTP Session objects are objects
used for storing client session information.

E-commerce:

10.02.2024.

Political issues of E-commerce:

- (i) Like any other area of business, e-commerce is not immune to political issues as it operates within a broader regulatory and geopolitical landscape.
- (ii) Some key political issues that can impact e-commerce are as follows:-
 - (a) Regulatory Compliance:
 - e-commerce businesses must comply with a very large number of regulations and laws which can vary significantly between countries and regions. These regulations cover areas such as consumer protection, data privacy, taxation, intellectual property rights and cross-border trade.

(b) Taxation: Taxation policies related to e-commerce business can have a significant impact on business owners and consumers.

Government may implement taxes on online sales, digital services or cross-border transactions.

(c) Trade Policies: and agreements between countries can impact cross-border e-commerce activities including tariffs, custom Duties and import-export restrictions. Trade Disputes or changes in trade policies can disrupt supply chains, increase costs and affect the availability of goods and services in e-commerce markets.

(d) Data Localisation and Privacy:

Data localisation laws require companies to store and process data within a geographic location, often to protect National security or privacy interests. These laws can affect ecommerce businesses that operate globally and rely on cloud computing and data storage services.

contd.

19.02.2024

What is JSP?

JSP are HTML files with special tags that contain Java source code that provide dynamic content.

Google search engine the search will display results based on the user's search request.

Page is referred as dynamic as the same page displays different data.

Shift + ↲

<h1> This is a JSP page </h1>. Known as scriptlets

```
int i, j = 5, 20;  
int sum = i + j;  
out.print("Sum = " + sum);
```

```
</body>  
<h1> You have seen some java code above </h1>  
</body>
```

Servlet vs JSP:

Diff:		JSP	↓ Hard	easy to make.
Servlet	Java			
HTML	HTML Java			

Convert to web.	Server → Container
Container	New web container.
Less time	More time.

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JSP life cycle.

Translation and Compilation (This phase not in Servlet).

Initialization

Initialisation
service

Destroy.

~~JAS commands~~
Directives Action Scripting

1) JSP translate into Java file, and compiled by servlet class.
in web cont.

2) Web container create instance of serv. class.

3) web container instantiates servlet and makes it
ready for service request.

4) Service: Jsp services the user requests.

5) JSP is destroyed by web container when application is
uninstalled.

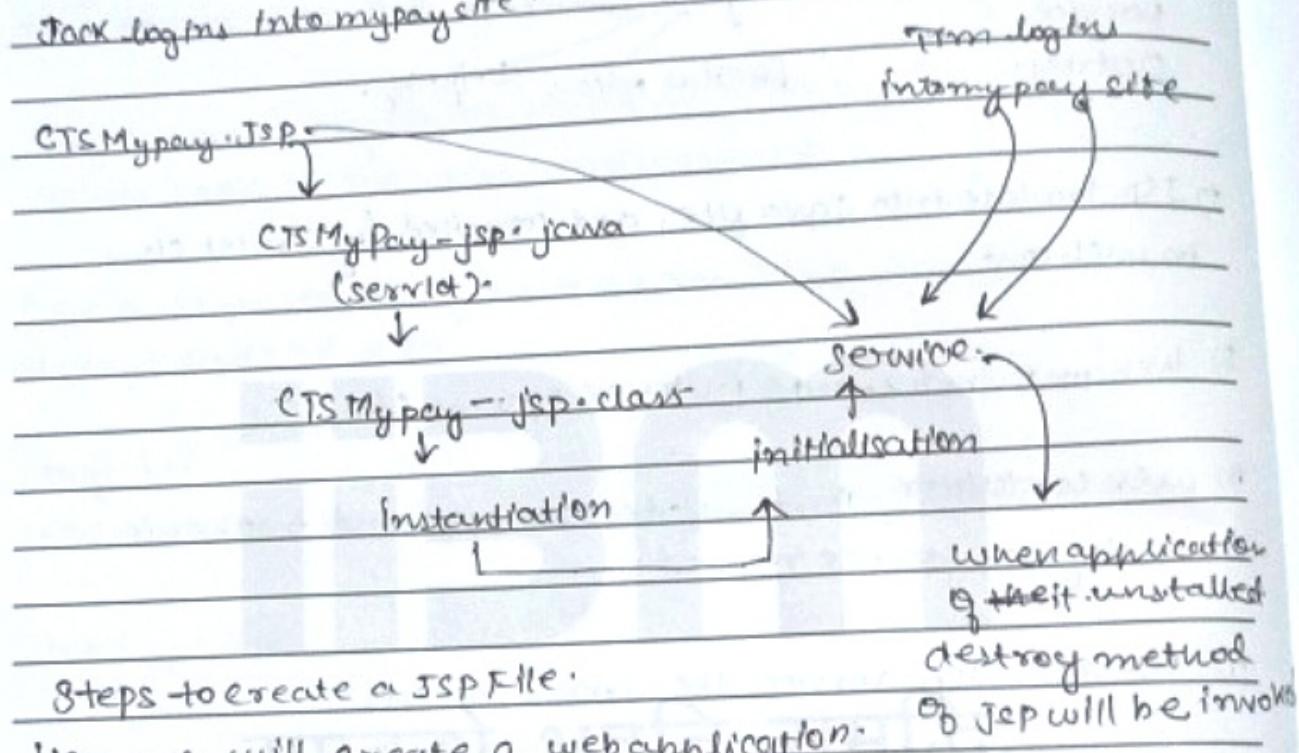
Methods that run internally.

jspInit(): will initialise servlet instance,
before servicing the client request and invoke only
once!

- jspService: The container calls the jspService() for
each user request, passing it the request
and response objects.

JspDestroy() the container calls this when it decides to take the instance out of the service. It is the last method called in servlet instance.

Jack logs in into my pay site



8 steps to create a JSP File

Here we will create a web application.

Step 1: Open eclipse → Dynamic web project → Make jsp file → Deploy the Application.

Name: JSP Demo

→ click web content : New → other click select JSP.

name: index.jsp (name).

enter finish.

<!DOCTYPE J

HTML> JSPDemo </HTML>

<H1> JSP Demo</H1>

<%= out.print("welcome to world of JSP");

Run on webserver.

Internally index.jsp ~ internally of servlet it's convert into auto generated code stuff!

Q what is JSP?

Q Phases of JSP life cycle?

Q when and how many times jsp-init will be fired?

Q what is jsp-service method?

elements of JSP: Q what are different types of JSP elements:

Directives, Actions, Scripting, Comments.

Scripting Elements are used to embed java code in JSP files. This is of 3 types: Scriptlets, Declaration and Expression.

Scriptlet Element: used to embed java code in jsp pages

embedded between <% and %>.

Code should comply with syntactical and semantic construct

Objcva <%= is not scriptlet.

Contents of jsp scriptlet copy to the -jpservice() method during the translation phase.

<% and %> Known as delimiters

Syntax <% Java code goes in here %>

To print a variable value

<%

String Username = "visualbuilder"; BE local variable class
out.println("username");

%>

Declaration:

Are used to declare, define methods and instance variables. Declaration tag does not produce any output that is sent to client. The methods and classes declared will be translated as class level variables and methods during translation.

How to declare?

Methods or variable are declared using <%! and %> delimiters

<%! variable = 0; %>

<%! int count = 10; %>

The instance var. is, the scriptlet it prints it's own

Expression element:

This is used to write dynamic content back to client browser. Used in place of old .print() method.

Only expressions are supported inside the tag.
Declarations of methods and variables is not possible
inside this tag.

~~Declarations~~

<%= expression %>

Example:

<html><body> hello, Time is now <%= new java.util.Date() %>
... %> .

</body> </html> .

Comments:

HTML <!-- This is a comment --!>

JSP <%-- This is a comment --%>

HTML comments are

permitted during the translation
phase and hence can be viewed in the page source in the
browser.

JSP comments will be converted to normal Java comments
during the translation process and will not appear
in the output page source.

Create JSP : sample.jsp

This will calculate no. of users visiting the page and
should print the value in the screen.

Output

Sample page

This page is viewed

Coding inside picture: write other side!

<head> <html> ...

head tag after this

<t> int count = 0;

void increment(count){ }

count++;

</t>

<body>

<h1 style="margin-left: 25px;"> Sample page <h1>

<h2>

<t> int localvariable = 0;

out.print("This page is viewed " + count + " times");

increment(count);

</t>

</h2>

The value of local variable is <t> = localvariable * 6 </t>

<t> localvariable ++ ; </t>

</body>

<html>

same program to add 2 no.
by the logic.

```
<ol> int var1 = 0;  
int var2 = 0;
```

```
void sum(int var1, int var2) {
```

```
    int sum = 0;
```

```
    var1 = var1;
```

```
    var2 = var2;
```

```
    int addition-result = var1 + var2;
```

```
    out.print("The sum is " + addition-result);
```

```
}
```

```
</ol>
```

```
<body>
```

```
</body>
```

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E-commerce:

Net Neutrality Regulations

- Net Neutrality Regulations govern the equal treatment of internet traffic by internet service providers ensuring that all data is treated equally without discrimination or preferential treatment.

Changes in net neutrality regulations can impact the accessibility and affordability of internet services potentially affecting e-commerce businesses' ability to reach their customers and compete on a level playing field.

Cyber Security and National security:

Governments may implement cyber security related laws, regulations and measures to protect national security interests and critical infrastructure from cyber threats. E-commerce businesses must adapt cyber security standards and regulation to safeguard customer data, prevent cyber attacks, and ensure the integrity and availability of their online platforms.

Digital Rights and Intellectual property:

Governments play a role in enforcing intellectual property laws and regulations to

prevent privacy, vulnerability, counterfeiting, etc. which can impact e-commerce businesses revenue streams and competitive advantage. Intellectual property and digital rights such as: Copyrights, Trademarks, patents, digital signatures, EDI (Electronic Data Interchange), etc are critical for protecting contents, innovations, and brand identities in e-commerce.

Political Instability and Geopolitical Risks, conflicts and geopolitical tensions in regions where e-commerce businesses operate can disrupt operations, supply chains and market access.

Uncertainty and volatility in political environments can affect consumer confidence, investment decisions, and business expansion plans.

Legal Issues for e-commerce ... continued.

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JSP Directives:

Directives convey metadata to web container (i.e. the kind of webresources) it will use it for translation and compilation process.

e.g.: tag library, clauses or import (imp), (imp).
(imp) external file or include (imp) Content or
Output करने का प्रोसेस करता है।

JSP of 3 Type:

Page : info about page, script lang used, or info about JSP.

Include : ext file or include (imp).

Taglib custom tag in tag library or developer defined.
Custom JSP custom tag or अपनी आसन।

JSP directive

<%@ directive attribute="value" %>

directive: The page directive (page, taglib or include)

Attribute: Represent the behaviour to set page directive to act upon.

Page Directive: ये JSP की metadata container है।

ये JSP page की जाति या रूप। Standard format की जैसी top direct or page की जैसी directive की समस्ती है।

Import की सहित एक सभी है।

buffer, autoflush, contentType, encoderPages, isEncoderPage
pageDirective & i

buffer <%@ page buffer="" %> none] 8kb] sizekb
<%@ page & from the img. on 20 Feb 2004.

extends, import, myo, isThreadSafe.

To import - the java lib. use threads.
Superclass that service must extend.
String use to access.

Buyl need Buffer, Session Page, Import, Session अपने प्रयोग करना

Include directive & through HTML file के द्वारा अपने JSP
HTML/JSP के embed करते हैं।

header, footer के लिए JSP/HTML का include कर सकते हैं
स्टॉक MyPage.jsp के include हैं।

use myPage.jsp के required हैं।

myPage.jsp के header.jsp include हैं, फिर
3rd में mypage-jsp.java का translate होता है,
3rd user की combined output होता है,

E-commerce There are several legal issues associated with E-commerce businesses. Some common legal issues are as follows:

- (i) Consumer Data protection: • E-commerce transaction involves the sales of goods & services to consumers which requires the related consumer protection laws. These laws typically include regulation on fair advertising and marketing practices, accurate product descriptions, pricing transparency, clear cut warranty and guarantee conditions, clear cut return policy protection against fraudulent practices etc.
- E-commerce businesses must ensure to follow these regulations to avoid legal consequences and maintain customer trust.

- (ii) Intellectual property rights: as we know that E-commerce platforms can be vulnerable to intellectual property such as - the sale of fake or unauthorised products. Online market places need to implement effective measures to prevent the listing and sale of unauthorised goods, respond promptly through intellectual property unauthorised claims, and establish a mechanism for a right holder to enforce their intellectual property rights.
- (iii) Privacy and Data protection: E-commerce platforms collect and store. E-commerce platforms collect vast amount of customers data including personal information and Transaction details. These platforms must comply with privacy and data protection laws. To safeguard customer information. This includes appropriate security measures to protect against data breaches and providing a clear privacy policy that outline how customer data is handled.
- (iv) Online payments and financial operator regulations:
- (a) E-commerce platform facilitate online transactions including the collection and processing of payment information. These payment information are regulated by using Anti-money laundering, AML and Know your customer (KYC). requirements is essential to prevent illegal activities through E-commerce business.

- Also, E-commerce Businesses must ensure secure payment processing systems and comply with relevant card policy (Industry). - PCI Standard

PCT: