
INDIRA GANDHI NATIONAL OPEN UNIVERSITY



LABORATORY RECORD

Month & Year :
Name :
Study Center : 1402, SH College, Thevara, Kochi-13
Course :
Course Title :

Course Code:

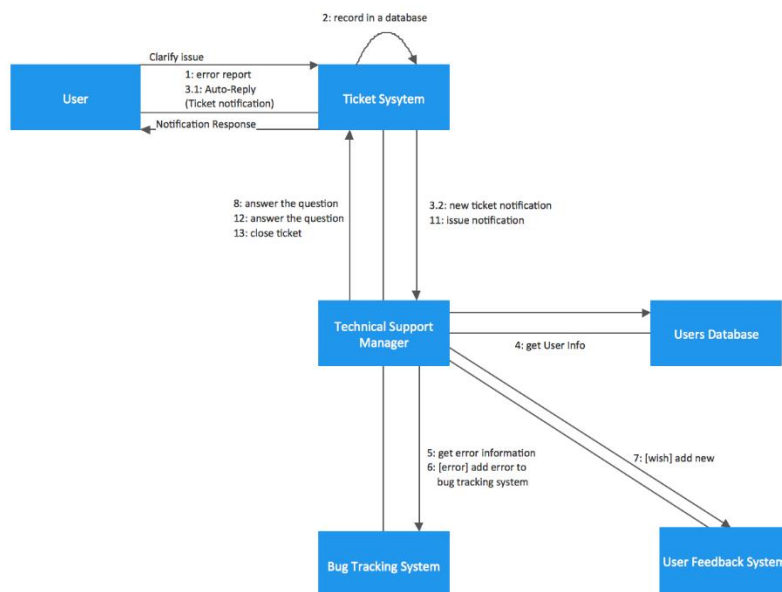
Enrolment No:

External Examiner

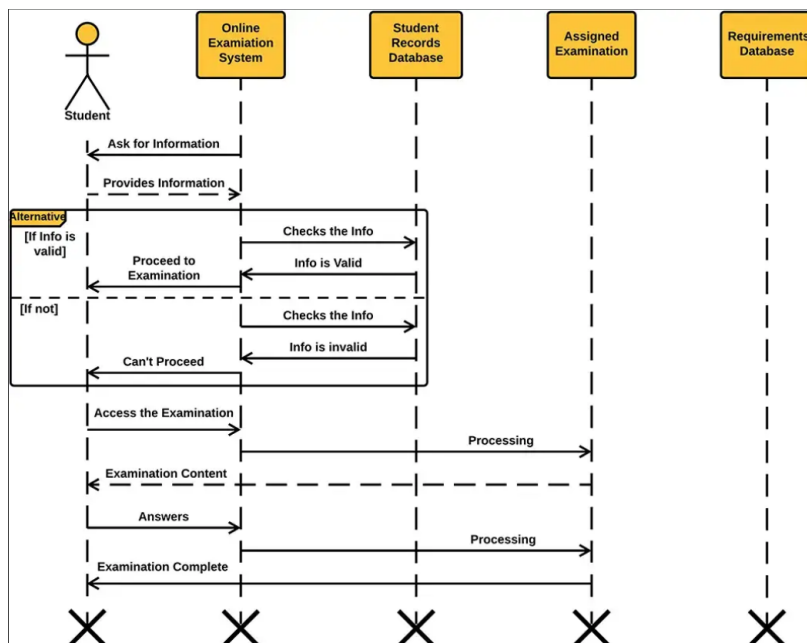
Staff In-Charge

OOAD

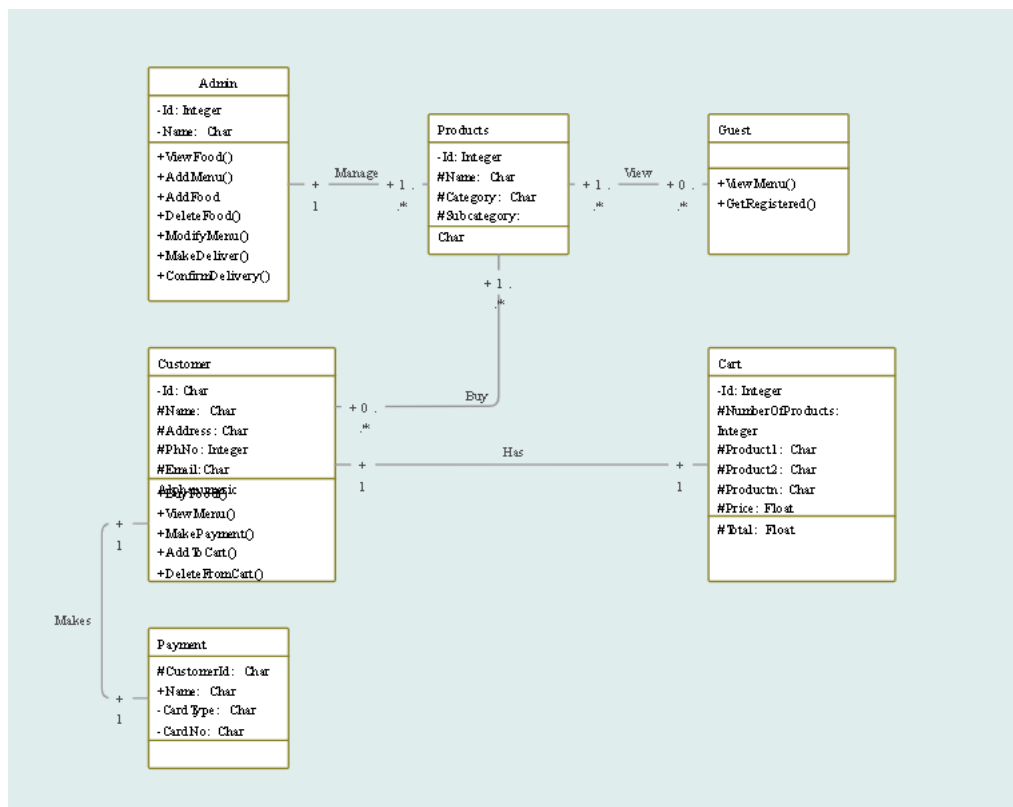
1: Draw collaboration diagram for online Ticket booking System.



2: Draw sequence diagram for Online Examination System.

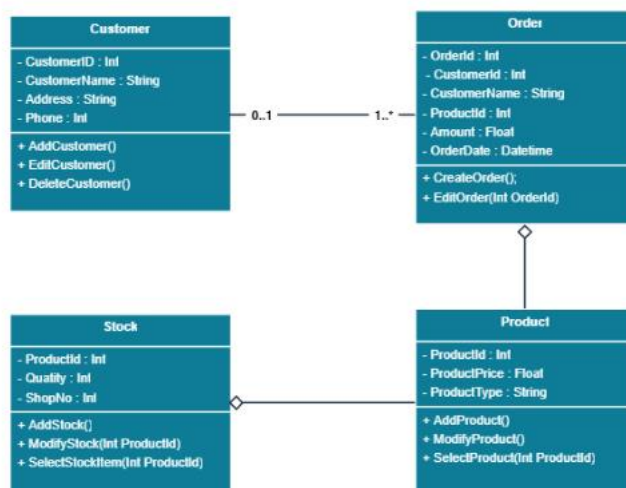


3: Draw Class Diagram for the System.

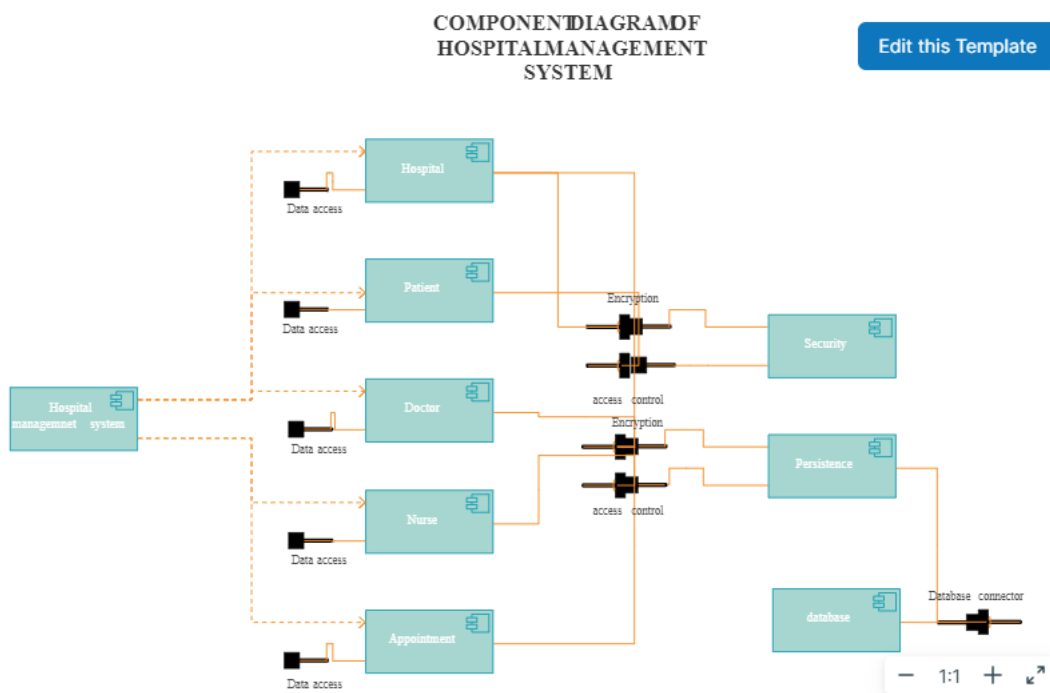


4:

Class Diagram for Order Processing System



5:



WEB TECHNOLOGIES

Q1. Write a Servlet Programme to print the current date and time along with the timestamp.

Ans1:

```
package com.ignou.app2;

import jakarta.servlet.ServletException;
import jakarta.servlet.annotation.WebServlet;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
import java.io.PrintWriter;
import java.util.Date;

/**
 * Servlet implementation class Question1
 */
}
```

Q2. Create an HTML form with the input of student information using HTTP

Protocol and method, then display the input information using Servlet.

Student-form-add.html

```
<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Insert title here</title>

</head>

<body>

<form method="POST" action="StudentFormServlet">

First Name: <input type="text" name="fname" /><br>

Last Name: <input type="text" name="lname" /><br>

Age: <input type="number" name="age" /><br>

Email: <input type="text" name="email" /><br>

<input type="submit" value="Submit" />

</form>

</body>

</html>
```

StudentFormServlet.java

```
package com.ignou.app2;

import jakarta.servlet.ServletException;
import jakarta.servlet.annotation.WebServlet;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
import java.io.PrintWriter;

/**
 * Servlet implementation class StudentFormServlet
 */
```

```

public class StudentFormServlet extends HttpServlet {
    private static final long serialVersionUID = 1L;

    /**
     * @see HttpServlet#HttpServlet()
     */
    public StudentFormServlet() {
        super();
        // TODO Auto-generated constructor stub
    }

    public class Question1 extends HttpServlet {
        private static final long serialVersionUID = 1L;

        /**
         * @see HttpServlet#HttpServlet()
         */
        public Question1() {
            super();
            // TODO Auto-generated constructor stub
        }

        /**
         * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse response)
         */
        protected void doGet(HttpServletRequest request, HttpServletResponse response) throws
            ServletException, IOException {
            // TODO Auto-generated method stub
            PrintWriter out = response.getWriter();

            Date date = new Date();

            long timeStamp = System.currentTimeMillis();

            String ipAddress = request.getHeader("X-FORWARDED-FOR");

            System.out.println("ip address - " + ipAddress);

            if(ipAddress == null) {
                ipAddress = request.getRemoteAddr();
            }
        }
    }
}

```

```

}

out.println("Date - " + date);

out.println("Timestamp - " + timeStamp);

out.println("Ip Address - " + request.getRemoteAddr());

out.println("Ip Address Local - " + request.getLocalAddr());

}

/**
 * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse response)
 */
protected void doPost(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
    // TODO Auto-generated method stub
    doGet(request, response);
}

/**
 * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
response)
 */
protected void doGet(HttpServletRequest request, HttpServletResponse response)
throws ServletException, IOException {
    response.setContentType("text/html");
    PrintWriter out = response.getWriter();
    String fname = request.getParameter("fname");
    String lname = request.getParameter("lname");
    String age = request.getParameter("age");
    String email = request.getParameter("email");
    out.println("<html><head>");
    out.println("<title>Hello Student</title>");
    out.println("<body>");
    out.println("<h3>Student Details</h3><hr>");
    out.println("<p>First Name: " + fname + "</p>");

```

```

out.println("<p>Last Name: "+ lname + "</p>");
out.println("<p>Age: "+ age + "</p>");
out.println("<p>Email: "+ email + "</p>");
}

/**
 * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
response)
 */
protected void doPost(HttpServletRequest request, HttpServletResponse response)
throws ServletException, IOException {
// TODO Auto-generated method stub
doGet(request, response);
}
}

```

Q3. Write a servlet program to capture client IPs and display it.

```

package com.ignou.app2;

import jakarta.servlet.ServletException;
import jakarta.servlet.annotation.WebServlet;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
import java.io.PrintWriter;
import java.util.Date;

/**
 * Servlet implementation class Question1
 */
public class Question1 extends HttpServlet {
private static final long serialVersionUID = 1L;

/**
 * @see HttpServlet#HttpServlet()

```



```

*/

public Question1() {
    super();
    // TODO Auto-generated constructor stub
}

/**
 * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse response)
 */
protected void doGet(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
    // TODO Auto-generated method stub
    PrintWriter out = response.getWriter();
    Date date = new Date();
    long timeStamp = System.currentTimeMillis();
    String ipAddress = request.getHeader("X-FORWARDED-FOR");
    System.out.println("ip address - " + ipAddress);
    if(ipAddress == null) {
        ipAddress = request.getRemoteAddr();
    }
    out.println("Date - " + date);
    out.println("Timestamp - " + timeStamp);
    out.println("Ip Address - " + request.getRemoteAddr());
    out.println("Ip Address Local - " + request.getLocalAddr());
}

/**
 * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse response)
 */
protected void doPost(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
    // TODO Auto-generated method stub
    doGet(request, response);
}

```

```
}  
}
```

Q4. Write a servlet program for session management using HTTP Session along

with tracking and also use a cookie for session tracking.

form-submit.html

```
<!DOCTYPE html>  
  
<html>  
  
<head>  
  
<meta charset="ISO-8859-1">  
  
<title>Insert title here</title>  
  
</head>  
  
<body>  
  
<form method="POST" action="SessionTrackingServlet">  
  
Name: <input type="text" name="name" /> <br><br>  
Age: <input type="text" name="age" /> <br><br>  
Email: <input type="text" name="email" /> <br><br>  
<input type="submit" value="Submit" />  
  
</form>  
  
</body>  
  
</html>
```

SessionTrackingServlet.java

```
package com.ignou.app2;  
  
import jakarta.servlet.ServletException;  
import jakarta.servlet.annotation.WebServlet;  
import jakarta.servlet.http.Cookie;  
import jakarta.servlet.http.HttpServlet;  
import jakarta.servlet.http.HttpServletRequest;  
import jakarta.servlet.http.HttpServletResponse;  
import jakarta.servlet.http.HttpSession;  
import java.io.IOException;  
import java.io.PrintWriter;
```

```
import java.net.URLEncoder;

public class SessionTrackingServlet extends HttpServlet {

    private static final long serialVersionUID = 1L;

    public SessionTrackingServlet() {
        super();
    }

    protected void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        HttpSession session = request.getSession();

        // Read form data
        String name = request.getParameter("name");
        String age = request.getParameter("age");
        String email = request.getParameter("email");
        session.setAttribute("name", name);
        session.setAttribute("age", age);
        session.setAttribute("email", email);

        out.println(name);
        out.println(age);

        // Cookie nameCookie = new Cookie("name","vimal");
        Cookie nameCookie = new Cookie("name",URLEncoder.encode(name,
            "UTF-8"));

        Cookie ageCookie = new Cookie("age",URLEncoder.encode(age, "UTF-8"));
        Cookie emailCookie = new Cookie("email",URLEncoder.encode(email,
            "UTF-8"));

        response.addCookie(nameCookie);
        response.addCookie(ageCookie);
        response.addCookie(emailCookie);

        out.println("Success adding details in session and cookie");
    }
}
```

```
protected void doGet(HttpServletRequest request, HttpServletResponse response)
throws ServletException, IOException {
doGet(request, response);
}
}
```

Q5. Write JSP Programme to print current date and time along with timestamp,

implement auto-refresh of a page.

```
<%@ page
import="java.util.*"
language="java" contentType="text/html; charset=ISO-8859-1"
pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<%
Date date = new Date();
int seconds = date.getSeconds();
out.println("Date: " + new Date());
out.println("<br>Timestamp: " + seconds + " " + System.currentTimeMillis());
response.setIntHeader("Refresh", 5);
%>
</body>
</html>
```