**1. Develop a hello world program web application and deploy it on the Google app engine.**

**HelloAppEngine.java**

import java.io.IOException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

@WebServlet(

name = "HelloAppEngine", urlPatterns = {"/hello"}

)

public class HelloAppEngine extends HttpServlet {

@Override

public void doGet(HttpServletRequest request, HttpServletResponse response) throws IOException {

response.setContentType("text/plain");

response.setCharacterEncoding("UTF-8");

response.getWriter().print("Hello Cloud Computing\r\n");

}

}

**Index.html**

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml" lang="en">

<head>

<meta http-equiv="content-type" content="application/xhtml+xml; charset=UTF-8" />

<title>Hello App Engine</title>

</head>

<body>

<h1>Hello App Google Engine!</h1>

<table>

<tr>

<td colspan="2" style="font-weight:bold;">Available Servlets:</td>

</tr>

<tr>

<td><a href='/hello'>Click Me</a></td>

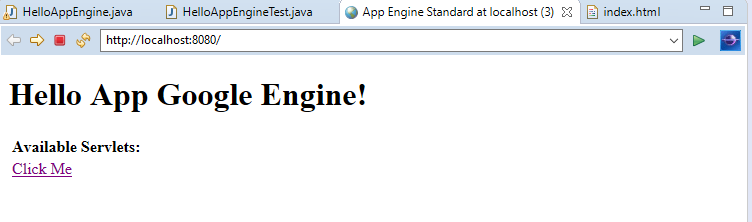
</tr>

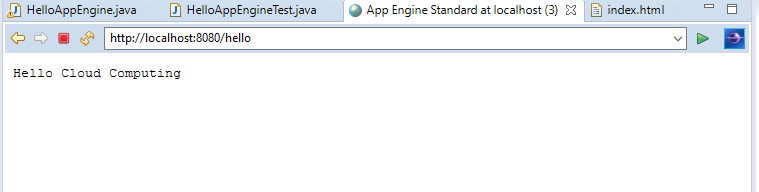
</table>

</body>

</html>

**Output:-**





**2. evelop a web application which displays the current date and time in a formatted way.**

**HelloAppEngine.java**

import java.io.IOException; import java.util.Date;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse; import javax.servlet.\*;

import java.io.\*;

@WebServlet(

name = "HelloAppEngine", urlPatterns = {"/datetime"}

)

public class HelloAppEngine extends HttpServlet {

@Override

public void doGet(HttpServletRequest request, HttpServletResponse response) throws IOException {

response.setContentType("text/html");

response.setCharacterEncoding("UTF-8");

response.getWriter().print("Hello App Engine!\r\n");

java.util.Date date = new java.util.Date();

response.getWriter().print("<h3>"+"Current Date and Time :"+date.toString()+"</h3>");

}

}

**Welcome1.java**

import java.io.IOException;

import java.util.Date;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import javax.servlet.\*;

import java.io.\*;

@WebServlet(

name = "welcome", urlPatterns = {"/secondfile"}

)

public class welcome1 extends HttpServlet {

@Override

public void doGet(HttpServletRequest request, HttpServletResponse response) throws IOException {

response.setContentType("text/html");

response.setCharacterEncoding("UTF-8");

response.getWriter().print("Hello Welcome in second Page!\r\n");

}

}

**Index.html**

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml" lang="en">

<head>

<meta http-equiv="content-type" content="application/xhtml+xml; charset=UTF-8" />

<title>Hello App Engine</title>

</head>

<body>

<h1>Hello App Engine!</h1>

<table>

<tr>

<td colspan=*"2"* style="font-weight:*bold*;">Available Servlets:</td>

</tr>

<tr>

<td><a href=*'/datetime'*>DateTime Demo</a></td>

</tr>

<tr>

<td><a href='/secondfile'>Second Page Demo</a></td>

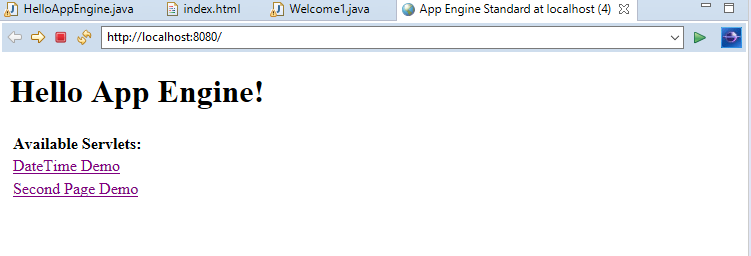
</tr>

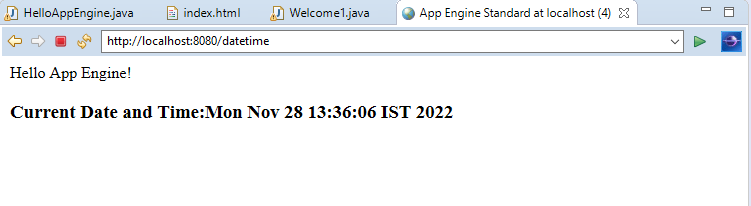
</table>

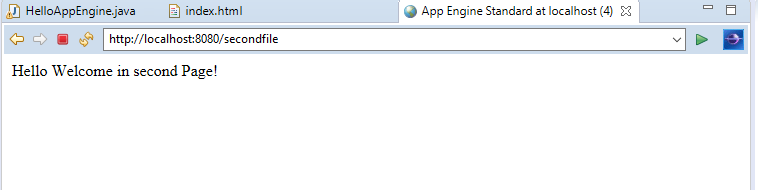
</body>

</html>

**Output:-**







**3. evelop a web application which is customized version of the practical no 2, which relates the clock with Google accounts. Each user will get different view based on the preferences and the user’s time zone.**

**HelloAppEngine.java**

import java.io.IOException;

import javax.servlet.RequestDispatcher;

import javax.servlet.ServletException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import com.google.appengine.api.users.User;

import com.google.appengine.api.users.UserService;

import com.google.appengine.api.users.UserServiceFactory;

@WebServlet(

name = "HelloAppEngine", urlPatterns = {"/hello"}

)

public class HelloAppEngine extends HttpServlet {

@Override

public void doGet(HttpServletRequest request, HttpServletResponse response) throws IOException, ServletException {

response.setContentType("text/plain");

response.setCharacterEncoding("UTF-8");

UserService userService=UserServiceFactory.getUserService();

User user= userService.getCurrentUser();

String loginUrl = userService.createLoginURL("/");

String logoutUrl = userService.createLogoutURL("/");

request.setAttribute("user",user); request.setAttribute("loginurl",loginUrl);

request.setAttribute("logouturl",logoutUrl);

RequestDispatcher jsp = request.getRequestDispatcher("/WEB-INF/home.jsp"); jsp.forward(request, response);

}

}

**Index.html**

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml" lang="en">

<head>

<meta http-equiv="content-type" content="application/xhtml+xml; charset=UTF-8" />

<title>Hello App Engine</title>

</head>

<body>

<h1>Hello App Engine!</h1>

<table>

<tr>

<td colspan="2" style="font-weight:bold;">Available Servlets:</td>

</tr>

<tr>

<td><a href=*'/hello'*>The servlet</a></td>

</tr>

</table>

</body>

</html>

**4.Develop a web application for task management. Create a form to enter summary, URL and description of task and a button to insert a task in the task list. Use JPA (Java Persistence API) for the persistence and Sends the selected todo to yourself via email as a reminder.**

**Task.java**

import java.util.Date;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

@Entity

public class employee { @Id

@GeneratedValue(strategy = GenerationType.IDENTITY)

private Long id;

private String taskname;

private String taskperiode;

private String tasktype;

public Long getId()

{

return id;

}

public String getTaskname() {

return taskname;

}

public void setName(String taskname) {

this.taskname = taskname;

}

public String getTaskperiode() {

return taskperiode;

}

public void setTaskperiode(String taskperiode) {

this.taskperiode = taskperiode;

}

public int getTasktype() {

return tasktype;

}

public void setTasktype(int tasktype) {

this.tasktype = tasktype;

}

}

**insert.java**

package com.example.myjpa;

import java.io.IOException;

import java.util.Calendar;

import java.util.Date;

import java.util.GregorianCalendar;

import javax.servlet.ServletException;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import com.google.appengine.api.datastore.DatastoreService;

import com.google.appengine.api.datastore.DatastoreServiceFactory;

import com.google.appengine.api.datastore.Entity;

public class task extends HttpServlet {

private static final long serialVersionUID = 1L;

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

DatastoreService ds = DatastoreServiceFactory.getDatastoreService();

Entity task1 = new Entity("task1");

task1.setProperty("Task name", "task1");

task1.setProperty("Task Time", "1 hour");

task1.setProperty("Task Type", "type 1");

ds.put(task1);

}

}

**5.Develop a simple Java web application for Google App Engine--a guestbook that lets users post messages to a public message board.**

**HelloAppEngine.java**

import java.io.IOException;

import javax.servlet.RequestDispatcher;

import javax.servlet.ServletException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

@WebServlet(

name = "HelloAppEngine", urlPatterns = {"/hello"}

)

public class HelloAppEngine extends HttpServlet {

@Override

public void doGet(HttpServletRequest request, HttpServletResponse response) throws IOException, ServletException {

response.setContentType("text/plain"); response.setCharacterEncoding("UTF-8");

response.getWriter().print("Name:"+request.getParameter("gname")); response.getWriter().print("\nPassword:"+request.getParameter("pass")); response.getWriter().print("\nMobile:"+request.getParameter("mno"));

}

}

**Index.html**

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml" lang="en">

<head>

<meta http-equiv="content-type" content="application/xhtml+xml; charset=UTF-8" />

<title>Hello App Engine</title>

</head>

<body>

<center>

<h1>Login</h1>

</center>

<table align="center" border=1>

<tr>

<td>userName:-</td>

<td><input type="text" name="gname"></td>

</tr>

<tr>

<td>password:-</td>

<td><input type="password" name="pass"></td>

</tr>

<tr>

<td>Mobile:-</td>

<td><input type="text" name="mno"></td>

</tr>

<tr>

<td colspan=2 align="center"><input type="submit" name="submit" value="Login"></td>

</tr>

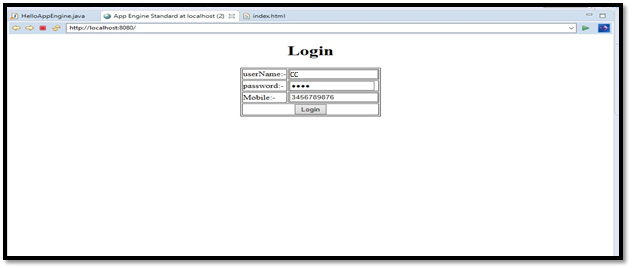
</table>

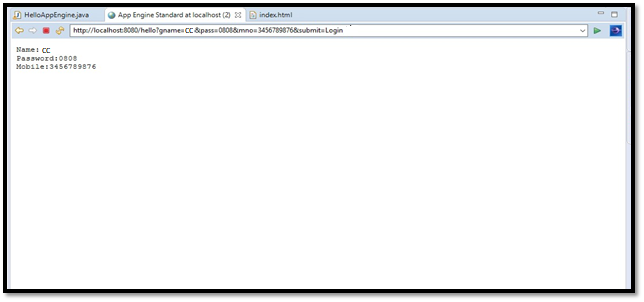
</form>

</body>

</html>

**Output:-**

****

****

**6. Create a book class as entity and make the object persistence using JPA. Demonstrate the saving, fetching and deleting objects operations.**

**Book.java**

import java.util.Date;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

@Entity

public class Book { @Id

@GeneratedValue(strategy = GenerationType.IDENTITY)

private Long id;

private String title;

private String author;

private int copyrightYear;

private Date authorBirthdate;

public Long getId()

{

return id;

}

public String getTitle() { return title;

}

public void setTitle(String title) {

this.title = title;

}

public String getAuthor() {

return author;

}

public void setAuthor(String author) {

this.author = author;

}

public int getCopyrightYear() {

return copyrightYear;

}

public void setCopyrightYear(int copyrightYear) {

this.copyrightYear = copyrightYear;

}

public Date getAuthorBirthdate() {

return authorBirthdate;

}

public void setAuthorBirthdate(Date authorBirthdate) {

this.authorBirthdate = authorBirthdate;

}

}

**Bookinsert.java**

import java.io.IOException;

import java.util.Calendar;

import java.util.Date;

import java.util.GregorianCalendar;

import javax.servlet.ServletException;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import com.google.appengine.api.datastore.DatastoreService;

import com.google.appengine.api.datastore.DatastoreServiceFactory;

import com.google.appengine.api.datastore.Entity;

public class bookinsert extends HttpServlet {

private static final long serialVersionUID = 1L;

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

// TODO Auto-generated method stub

//response.getWriter().append("Served at:").append(request.getContextPath());

DatastoreService ds = DatastoreServiceFactory.getDatastoreService();

Entity book1 = new Entity("Book");

book1.setProperty("title", "google cloud computing");

book1.setProperty("author", "user google");

book1.setProperty("copyrightYear", 2021);

Date authorBirthdate =

new GregorianCalendar(1902, Calendar.FEBRUARY, 27).getTime(); book1.setProperty("authorBirthdate", authorBirthdate);

ds.put(book1);

}

}

**Display.java**

import java.io.IOException;

import javax.servlet.ServletException;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import java.util.List;

import javax.persistence.EntityManager;

import javax.persistence.EntityManagerFactory;

import javax.persistence.Query;

public class display extends HttpServlet {

private static final long serialVersionUID = 1L;

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

EntityManagerFactory emf = EMF.get(); EntityManager em = null;

em = emf.createEntityManager();

Query query = em.createQuery("SELECT title, author FROM Book book");

@SuppressWarnings("unchecked")

List<Object[]> results = (List<Object[]>) query.getResultList(); for (Object[] result : results)

{

//String isbn = (String) result[1];

//String title = (String) result[2]; String title = result[0].toString();

String author = result[1].toString(); response.getWriter().println(title+", "+ author);

}

}

}

**Delete.java**

import java.io.IOException;

import java.util.List;

import javax.servlet.ServletException;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import javax.persistence.EntityManager;

import javax.persistence.EntityManagerFactory;

import javax.persistence.Query;

public class delete extends HttpServlet {

private static final long serialVersionUID = 1L;

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

//response.getWriter().append("Served at:").append(request.getContextPath());

EntityManagerFactory emf = EMF.get(); EntityManager em = null;

//EntityManager em = null;

em = emf.createEntityManager();

Query query = em.createQuery("SELECT book FROM Book book");

@SuppressWarnings("unchecked")

List<Book> results = (List<Book>) query.getResultList(); Long id = null;

for (Book result : results)

{

//String isbn = (String) result[1];

//String title = (String) result[2]; id = result.getId();

String author = result.getAuthor(); response.getWriter().println( author);

}

try {

em = emf.createEntityManager(); Book book = em.find(Book.class,id); if (book != null) {

response.getWriter().println("found"); em.remove(book);

}

else

{

response.getWriter().println("not found");

}

} finally {

}

}

}

**7. Create an employee class as entity and makes the objects persistence using JPA. Demonstrate transaction processing in the data store using JPA.**

**employee.java**

import java.util.Date;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

@Entity

public class employee { @Id

@GeneratedValue(strategy = GenerationType.IDENTITY)

private Long id;

private String name;

private String address;

private int contact;

private Date joindate;

public Long getId()

{

return id;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public String getAddress() {

return address;

}

public void setAddress(String address) {

this.address = address;

}

public int getContect() {

return contact;

}

public void setContact(int contact) {

this.contact = contact;

}

public Date getJoindate() {

return joindate;

}

public void setJoindate(Date joindate) {

this.joindate = joindate;

}

}

**insert.java**

import java.io.IOException;

import java.util.Calendar;

import java.util.Date;

import java.util.GregorianCalendar;

import javax.servlet.ServletException;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import com.google.appengine.api.datastore.DatastoreService;

import com.google.appengine.api.datastore.DatastoreServiceFactory;

import com.google.appengine.api.datastore.Entity;

public class employee extends HttpServlet {

private static final long serialVersionUID = 1L;

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

// TODO Auto-generated method stub

//response.getWriter().append("Served at: ").append(request.getContextPath());

DatastoreService ds = DatastoreServiceFactory.getDatastoreService();

Entity employee1 = new Entity("employee");

employee1.setProperty("name", "raj patel");

employee1.setProperty("address", "surat");

employee1.setProperty("contact", 8976543213);

Date joindate =new GregorianCalendar(1902, Calendar.FEBRUARY, 27).getTime(); employee1.setProperty("Join date", joindate);

ds.put(employee1);

}

}