Lab Manual for Full Stack Web Development-I

1. Write a program to display the current date and add 1 week, 1 month,1 year and 10 years to the current date and print.

   Program:

```java
import java.time.LocalDate;
import java.time.temporal.ChronoUnit;


public class ChronoUnitTest {

    public static void main(String args[]) {

        // Get the current date

        LocalDate today = LocalDate.now();

        System.out.println("Current date: " + today);

        // add 1 week to the current date

        LocalDate nextWeek = today.plus(1, ChronoUnit.WEEKS);

        System.out.println("Next week: " + nextWeek);

        // add 1 month to the current date

        LocalDate nextMonth = today.plus(1, ChronoUnit.MONTHS);

        System.out.println("Next month: " + nextMonth);

        // add 1 year to the current date

        LocalDate nextYear = today.plus(1, ChronoUnit.YEARS);

        System.out.println("Next year: " + nextYear);

        // add 10 years to the current date

        LocalDate nextDecade = today.plus(1, ChronoUnit.DECADES);

        System.out.println("Date after ten year: " + nextDecade);

    }

}
```

```
/*
 * Current date: 2024-03-29
 * Next week: 2024-04-05
 * Next month: 2024-04-29
 * Next year: 2025-03-29
 * Date after ten year: 2034-03-29
 */
```

2. Write a program to print dates in different formats.

Program:

```java
import java.text.DateFormat;
import java.util.Date;


public class DateFormatExample2 {
    public static void main(String[] args) {
        Date currentDate = new Date();
        System.out.println("Current Date: " + currentDate);


        String dateToStr =
DateFormat.getInstance().format(currentDate);
        System.out.println("Date Format using getInstance(): " +
dateToStr);


        dateToStr =
DateFormat.getDateInstance().format(currentDate);
        System.out.println("Date Format using getDateInstance(): " +
dateToStr);
```

```java
        dateToStr =
DateFormat.getTimeInstance().format(currentDate);

        System.out.println("Date Format using getTimeInstance(): " +
dateToStr);


        dateToStr =
DateFormat.getDateTimeInstance().format(currentDate);

        System.out.println("Date Format using getDateTimeInstance():
" + dateToStr);


        dateToStr =
DateFormat.getTimeInstance(DateFormat.SHORT).format(currentDate);

        System.out.println("Date Format using
getTimeInstance(DateFormat.SHORT): " + dateToStr);


        dateToStr =
DateFormat.getTimeInstance(DateFormat.MEDIUM).format(currentDate);

        System.out.println("Date Format using
getTimeInstance(DateFormat.MEDIUM): " + dateToStr);


        dateToStr =
DateFormat.getTimeInstance(DateFormat.LONG).format(currentDate);

        System.out.println("Date Format using
getTimeInstance(DateFormat.LONG): " + dateToStr);


        dateToStr = DateFormat.getDateTimeInstance(DateFormat.LONG,
DateFormat.SHORT).format(currentDate);

        System.out.println("Date Format using
getDateTimeInstance(DateFormat.LONG,DateFormat.SHORT): " +
dateToStr);
```

```
      }

}

/*

 * Current Date: Thu Mar 07 10:12:34 IST 2024

 * Date Format using getInstance(): 07/03/24, 10:12?am

 * Date Format using getDateInstance(): 07-Mar-2024

 * Date Format using getTimeInstance(): 10:12:34?am

 * Date Format using getDateTimeInstance(): 07-Mar-2024, 10:12:34?am

 * Date Format using getTimeInstance(DateFormat.SHORT): 10:12?am

 * Date Format using getTimeInstance(DateFormat.MEDIUM): 10:12:34?am

 * Date Format using getTimeInstance(DateFormat.LONG): 10:12:34?am
IST

 * Date Format using
getDateTimeInstance(DateFormat.LONG,DateFormat.SHORT): 7

 * March 2024, 10:12?am

 */
```

3. Write a program to print local date and check whether the year is leap year or not.

```java
import java.time.LocalDate;


public class LocalDateExample1 {

  public static void main(String[] args) {

    LocalDate date = LocalDate.now();

    LocalDate yesterday = date.minusDays(1);

    LocalDate tomorrow = yesterday.plusDays(2);

    boolean var = date.isLeapYear();
```

```
    System.out.println("Yesterday date: " + yesterday);

    System.out.println("Tomorrow date: " + tomorrow);

    System.out.println("The Year is Leap?" + var);

  }

}

/*

 * Yesterday date: 2024-03-31

 * Tomorrow date: 2024-04-02

 * The Year is Leap?true

 */
```

4. Write a program to get the period between two dates and duration between two times.

```
import java.time.temporal.ChronoUnit;

import java.time.LocalDate;

import java.time.LocalTime;

import java.time.Duration;

import java.time.Period;


public class PeriodDurationTest {

    public static void main(String args[]) {

        // Get the current date

        LocalDate date1 = LocalDate.now();

        System.out.println("Current date: " + date1);

        // add 1 month to the current date

        LocalDate date2 = date1.plus(1, ChronoUnit.MONTHS);

        System.out.println("Next month: " + date2);
```

```java
        Period period = Period.between(date2, date1);

        System.out.println("Period: " + period);

        LocalTime time1 = LocalTime.now();

        System.out.println("Current Time: " + time1);

        Duration twoHours = Duration.ofHours(2);

        LocalTime time2 = time1.plus(twoHours);

        System.out.println(" Time2: " + time2);

        Duration duration = Duration.between(time1, time2);

        System.out.println("Duration: " + duration);

    }

}

/*

 * Current date: 2024-02-21

 * Next month: 2024-03-21

 * Period: P-1M ("P1M" is a one-month duration)

 * Current Time: 16:19:34.266723900

 * Time2: 21:19:34.266723900

 * Duration: PT2H (Period of Time)

 */
```

5. Write a program to print a zone with date ,zone id and current zone.

```java
import java.time.ZonedDateTime;

import java.time.ZoneId;


public class ZoneTest2 {

    public static void main(String args[]) {
```

```java
        // Get the current date and time

        ZonedDateTime date1 =
ZonedDateTime.parse("2007-12-03T10:15:30+05:30[Asia/Karachi]");

        System.out.println("date1: " + date1);

        ZoneId id = ZoneId.of("Europe/Paris");

        System.out.println("ZoneId: " + id);

        ZoneId currentZone = ZoneId.systemDefault();

        System.out.println("CurrentZone: " + currentZone);

    }

}

/*

 * date1: 2007-12-03T09:45:30+05:00[Asia/Karachi]

 * ZoneId: Europe/Paris

 * CurrentZone: Asia/Calcutta

 * PS C:\Users\nikit>

 */
```

6. Write a program that converts various strings into date objects.

```java
import java.text.SimpleDateFormat;

import java.util.Date;


public class StringToDateExample2 {

    public static void main(String[] args) throws Exception {

        String sDate1 = "31/12/1998";

        String sDate2 = "31-Dec-1998";

        String sDate3 = "12 31, 1998";

        String sDate4 = "Thu, Dec 31 1998";
```

```java
        String sDate5 = "Thu, Dec 31 1998 23:37:50";

        String sDate6 = "31-Dec-1998 23:37:50";

        SimpleDateFormat formatter1 = new SimpleDateFormat("dd/MM/yyyy");

        SimpleDateFormat formatter2 = new SimpleDateFormat("dd-MMM-yyyy");

        SimpleDateFormat formatter3 = new SimpleDateFormat("MM dd, yyyy");

        SimpleDateFormat formatter4 = new SimpleDateFormat("E, MMM dd yyyy");// day of the week ( E )

        SimpleDateFormat formatter5 = new SimpleDateFormat("E, MMM dd yyyy HH:mm:ss");

        SimpleDateFormat formatter6 = new SimpleDateFormat("dd-MMM-yyyy HH:mm:ss");

        Date date1 = formatter1.parse(sDate1);

        Date date2 = formatter2.parse(sDate2);

        Date date3 = formatter3.parse(sDate3);

        Date date4 = formatter4.parse(sDate4);

        Date date5 = formatter5.parse(sDate5);

        Date date6 = formatter6.parse(sDate6);

        System.out.println(sDate1 + "\t" + date1);

        System.out.println(sDate2 + "\t" + date2);

        System.out.println(sDate3 + "\t" + date3);

        System.out.println(sDate4 + "\t" + date4);

        System.out.println(sDate5 + "\t" + date5);

        System.out.println(sDate6 + "\t" + date6);

    }

}

/*
```

```
* 31/12/1998 Thu Dec 31 00:00:00 IST 1998

* 31-Dec-1998 Thu Dec 31 00:00:00 IST 1998

* 12 31, 1998 Thu Dec 31 00:00:00 IST 1998

* Thu, Dec 31 1998 Thu Dec 31 00:00:00 IST 1998

* Thu, Dec 31 1998 23:37:50 Thu Dec 31 23:37:50 IST 1998

* 31-Dec-1998 23:37:50 Thu Dec 31 23:37:50 IST 1998

*/
```

7. Write a program to convert number from binary to decimal.

```java
public class BinaryToDecimalExample3 {

    public static int getDecimal(int binary) {

        int decimal = 0;

        int n = 0;

        while (true) {

            if (binary == 0) {

                break;

            } else {

                int temp = binary % 10;

                decimal += temp * Math.pow(2, n);

                binary = binary / 10;

                n++;

            }

        }

        return decimal;

    }
```

```java
    public static void main(String args[]) {

        System.out.println("Decimal of 1010 is: " +
getDecimal(1010));

        System.out.println("Decimal of 10101 is: " +
getDecimal(10101));

        System.out.println("Decimal of 11111 is: " +
getDecimal(11111));

    }

}

/*

 * Decimal of 1010 is: 10

 * Decimal of 10101 is: 21

 * Decimal of 11111 is: 31

 */
```

8. Write a program to convert Hexadecimal number to Decimal number.

```java
public class HexaToDecimal1 {

    public static void main(String arg[]) {

        String st = "18";

        int bn = Integer.parseInt(st, 16);

        System.out.println(bn);

        System.out.println(Integer.parseInt("f", 16));

        System.out.println(Integer.parseInt("125", 16));


    }

}
```

9. Write a program to encode and decode JSON object in PHP.

Encode:

```
<!DOCTYPE html>
<html>
<body>
<?php
$arr2 = array('firstName' => 'Rahul', 'lastName' => 'Kumar', 'email' =>
'rahul@gmail.com');
echo json_encode($arr2);
?>
</body>
</html>
```

{"firstName":"Rahul","lastName":"Kumar","email":"rahul@gmail.com"}

```
<!DOCTYPE html>
<html>
<body>
<?php
$json2 = '{"firstName" : "Rahul", "lastName" : "Kumar",
"email" : "rahul@gmail.com"}';
var_dump(json_decode($json2, true));
?>
</body>
</html>
```

```
array(3) {
["firstName"]=> string(5) "Rahul"
["lastName"]=> string(5) "Kumar"
["email"]=> string(15) "rahul@gmail.com"
}
```

10. Write a program to encode and decode JSON object in JAVA.

Encode:

```
package com.mycompany.newjson;

import org.json.*;

public class NewJson {

    public static void main(String[] args) {

        JSONObject obj=new JSONObject();

        obj.put("name","sonoo");

        obj.put("age",new Integer(27));

        obj.put("salary",new Double(600000));

        System.out.print(obj);

    }

}
```

O/P:

{"name":"sonoo","salary":600000,"age":27}

Decode:

```java
import org.json.simple.JSONObject;
import org.json.simple.JSONValue;
public class JsonDecodeExample1 {
public static void main(String[] args) {
    String s="{\"name\":\"sonoo\",\"salary\":600000.0,\"age\":27}";
    Object obj=JSONValue.parse(s);
    JSONObject jsonObject = (JSONObject) obj;

    String name = (String) jsonObject.get("name");
    double salary = (Double) jsonObject.get("salary");
    long age = (Long) jsonObject.get("age");
    System.out.println(name+" "+salary+" "+age);
}
}
```

```
sonoo 600000.0 27
```

11. Write a program to decode JSON object using AJAX.

    ```html
    <html>

    <head>

    <meta content="text/html; charset=utf-8">

    <title>AJAX JSON by Javatpoint</title>

    <script type="application/javascript">

    function load()

    {
    ```

```
    var url = "http://date.jsontest.com/";//use any url that have json data

    var request;


    if(window.XMLHttpRequest){

     request=new XMLHttpRequest();//for Chrome, mozilla etc

    }

    else if(window.ActiveXObject){

     request=new ActiveXObject("Microsoft.XMLHTTP");//for IE only

    }

    request.onreadystatechange  = function(){

      if (request.readyState == 4  )

      {

        var jsonObj = JSON.parse(request.responseText);//JSON.parse() returns
JSON object

        document.getElementById("date").innerHTML =  jsonObj.date;

        document.getElementById("time").innerHTML = jsonObj.time;

      }

    }

    request.open("GET", url, true);

    request.send();

}

</script>

</head>

<body>
```

Date:

Time:

<button type="button" onclick="load()">Load Information</button>

</body>

</html>

O/P:

Date: 04-01-2024
Time: 10:47:01 AM
Load Information