**Worksheet-1**

**Java programming language**

**20pt05**

1) import java.util.\*;  
  
public class Main {  
  
  
 public static void main(String[] args) {  
 Scanner input = new Scanner(System.*in*);  
 final double FLUID\_OUNCE\_TO\_LITER = 0.029586;  
 final double GALLON\_TO\_LITER = 3.758;  
 final double OUNCE\_TO\_GRAM = 28.3495;  
 final double POUND\_TO\_GRAM = 453.6;  
 final double INCH\_TO\_METER = 0.00254;  
 final double FOOT\_TO\_METER = 0.305;  
 final double MILE\_TO\_METER = 1609.0;  
 System.*out*.print("Convert from (fl.oz, gal, oz, lb, in, ft, mi): ");  
 String convert\_from = input.next();  
 System.*out*.print("Convert to (ml, l, g, kg, mm, cm, m, km): ");  
 String convert\_to = input.next();  
 System.*out*.print("Enter value: ");  
 double value = input.nextDouble();  
 input.close();  
  
 double c\_factor = 0.0;  
  
 if (convert\_from.equals("fl.oz")) {  
 if (convert\_to.equals("ml")) {  
 c\_factor = FLUID\_OUNCE\_TO\_LITER \* 1000;  
 }  
 else if (convert\_to.equals("l")) {  
 c\_factor = FLUID\_OUNCE\_TO\_LITER;  
 }  
 }  
 else if (convert\_from.equals("gal")) {  
 if (convert\_to.equals("ml")) {  
 c\_factor = GALLON\_TO\_LITER \* 1000;  
 }  
 else if (convert\_to.equals("l")) {  
 c\_factor = GALLON\_TO\_LITER;  
 }  
 }  
 else if (convert\_from.equals("oz")) {  
 if (convert\_to.equals("g")) {  
 c\_factor = OUNCE\_TO\_GRAM;  
 }  
 else if (convert\_to.equals("kg")) {  
 c\_factor = OUNCE\_TO\_GRAM / 1000;  
 }  
 }  
 else if (convert\_from.equals("lb")) {  
 if (convert\_to.equals("g")) {  
 c\_factor = POUND\_TO\_GRAM;  
 }  
 else if (convert\_to.equals("kg")){  
 c\_factor = POUND\_TO\_GRAM / 1000;  
 }  
 }  
 else if (convert\_from.equals("in")) {  
 if (convert\_to.equals("mm")) {  
 c\_factor = INCH\_TO\_METER \* 1000;  
 }  
 else if (convert\_to.equals("cm")) {  
 c\_factor = INCH\_TO\_METER \* 100;  
 }  
 else if (convert\_to.equals("m")) {  
 c\_factor = INCH\_TO\_METER;  
 }  
 else if (convert\_to.equals("km")) {  
 c\_factor = INCH\_TO\_METER / 1000;  
 }  
 }  
 else if (convert\_from.equals("ft")) {  
 if (convert\_to.equals("mm")) {  
 c\_factor = FOOT\_TO\_METER \* 1000;  
 }  
 else if (convert\_to.equals("cm")) {  
 c\_factor = FOOT\_TO\_METER \* 100;  
 }  
 else if (convert\_to.equals("m")) {  
 c\_factor = FOOT\_TO\_METER;  
 }  
 else if (convert\_to.equals("km")) {  
 c\_factor = FOOT\_TO\_METER / 1000;  
 }  
 }  
 else if (convert\_from.equals("ml")) {  
 if (convert\_to.equals("mm")) {  
 c\_factor = MILE\_TO\_METER \* 1000;  
 }  
 else if (convert\_to.equals("cm")) {  
 c\_factor = MILE\_TO\_METER \* 100;  
 }  
 else if (convert\_to.equals("m")) {  
 c\_factor = MILE\_TO\_METER;  
 }  
 else if (convert\_to.equals("km")) {  
 c\_factor = MILE\_TO\_METER / 1000;  
 }  
 }  
  
 if (c\_factor == 0.0) {  
 System.*out*.println("Conversion is unavailable.");  
 }  
 else {  
 double converted = value \* c\_factor;  
 System.*out*.printf("%.4f %s = %.4f %s", value, convert\_from, converted, convert\_to);  
 }  
 }  
  
}

2)   
import java.util.\*;  
  
enum Grades{  
 *A*(4),*B*(3),*C*(2),*D*(1),*F*(0);  
 public final double grade;  
 private Grades(int i) {  
 this.grade=i;  
 }  
  
 double getGradeValue(String letter){  
 return this.grade;  
 }  
  
 double getModifiedValue(char s){  
 switch (s){  
 case '+':  
 return grade+(grade<4 && grade>0 ?0.3:0);  
 case '-':  
 return grade+(grade>0?-0.3:0);  
 default:  
 System.*out*.println("Invalid input!");  
 }  
 return grade;  
 }  
}  
public class Main {  
 public static void main(String[] args) {  
  
 Scanner sc=new Scanner(System.*in*);  
 System.*out*.println("Enter the Grade:");  
 String letter=sc.nextLine();  
  
 Grades g=Grades.*valueOf*(letter.substring(0,1));  
 if(letter.length()>1){  
 System.*out*.println(g.getModifiedValue(letter.charAt(1)));  
  
 }  
 else{  
 System.*out*.println(g.grade);  
 }  
  
  
  
 }  
}

3)   
import java.util.\*;  
  
  
public class Main{  
//  
public static class Card  
{  
 private String denom;  
 private String suite;  
 private String String1;  
 private String String2;  
  
 public Card(String s1)  
 {  
 denom = s1.substring(0, 1);  
 suite = s1.substring(1);  
 }  
  
 public String getDescription()  
 {  
 if (denom.equalsIgnoreCase("K"))  
 {  
 String1 = "King";  
 }  
 else if (denom.equalsIgnoreCase("Q"))  
 {  
 String1 = "Queen";  
 }  
 else if (denom.equalsIgnoreCase("J"))  
 {  
 String1 = "Jack";  
 }  
 else if (denom.equals("10"))  
 {  
 String1 = "Ten";  
 }  
 else if (denom.equals("9"))  
 {  
 String1 = "Nine";  
 }  
 else if (denom.equals("8"))  
 {  
 String1 = "Eight";  
 }  
 else if (denom.equals("7"))  
 {  
 String1 = "Seven";  
 }  
 else if (denom.equals("6"))  
 {  
 String1 = "Six";  
 }  
 else if (denom.equals("5"))  
 {  
 String1 = "Five";  
 }  
 else if (denom.equals("4"))  
 {  
 String1 = "Four";  
 }  
 else if (denom.equals("3"))  
 {  
 String1 = "Three";  
 }  
 else if (denom.equals("2"))  
 {  
 String1 = "Two";  
 }  
 else if (denom.equalsIgnoreCase("A"))  
 {  
 String1 = "Ace";  
 }  
  
  
 if (suite.equalsIgnoreCase("D"))  
 {  
 String2 = "Diamonds";  
 }  
 else if (suite.equalsIgnoreCase("H"))  
 {  
 String2 = "Hearts";  
 }  
 else if (suite.equalsIgnoreCase("C"))  
 {  
 String2 = "Clubs";  
 }  
 else if (suite.equalsIgnoreCase("S"))  
 {  
 String2 = "Spades";  
 }  
  
 return String1 + " of " + String2;  
 }  
}  
  
 public static void main(String[] argc) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.println("Enter the card notation:");  
 String card = sc.nextLine();  
  
 String denom = card.substring(0, 1);  
 String suite = card.substring(1);  
 Card c= new Card(card);  
 System.*out*.println(c.getDescription());  
  
  
 }  
  
}

4) import java.util.\*;  
public class Main{  
 public static void main(String[] argc){  
 Scanner sc=new Scanner(System.*in*);  
 System.*out*.println("Enter the Number of gallons of gas in the tank:");  
 float no\_of\_gallons\_gas=sc.nextFloat();  
 System.*out*.println("Enter the fuel efficiency in miles per gallon:");  
 float efficiency=sc.nextFloat();  
 System.*out*.println("Enter the price of gas per gallon:");  
 double price=sc.nextDouble();  
  
 double distance=no\_of\_gallons\_gas\*efficiency;  
 double cost\_per\_mile=(100/efficiency)\*price;  
  
 System.*out*.println("The car can travel = "+distance+" miles");  
 System.*out*.println("Cost per mile = "+cost\_per\_mile);  
 }  
}

5)   
import java.util.\*;  
  
public class Main{  
 public static void main(String[] argc){  
 Scanner sc=new Scanner(System.*in*);  
 System.*out*.println("Enter Your Astrological Sign:");  
 String sign=sc.nextLine();  
 String fortune = null;  
  
 switch (sign){  
 case "scorpio":  
 fortune="The flamboyance with which you do your work leaves people awestruck." +  
 "At work, your dedication will win rich favour from your bosses.";  
 case "aris":  
 fortune="Today you may want to do only those things that you love to do." +  
 " You have a very optimistic outlook.";  
 case "taurus":  
 fortune="At work or in business, you are likely to feel uneasy about " +  
 "the people around you, says Ganesha.";  
 case "gemini":  
 fortune="Though you are always open to advice, " +  
 "you need to take your own, independent decision today. ";  
 case "cancer":  
 fortune="Both your physical and mental health will " +  
 "" +  
 "remain stable today, predicts Ganesha.";  
 case "leo":  
 fortune="It's an early thanksgiving for you today, " +  
 "says Ganesha, as you feel full of the spirit of joy and blessing. ";  
 case "virgo":  
 fortune="Today, you shall be in a receptive frame of mind, open to all ideas; " +  
 "yet the stubborn will rule when decision-making matters, predicts Ganesha";  
 case "libra":  
 fortune="The mind is a pool of infinite thoughts; this is more " +  
 "true for you today than any other day.";  
 case "sagittarius":  
 fortune="A delightfully emotional experience would stir up your soul today. ";  
 case "capricon":  
 fortune="You may have a good control over your temper, but Ganesha says you are very " +  
 "likely to lose it today, and most likely, at work.";  
 case "aquarius":  
 fortune="Your friends will make your day, especially those " +  
 "in high places will prove invaluable.";  
 case "pisces":  
 fortune="Your social standing ought to receive a boost today, and the financial success coming your" +  
 " way today plays no small part in it, says Ganesha. ";  
  
  
 }  
  
 System.*out*.println(sign+" : "+fortune);  
 }  
}

6) import java.text.DecimalFormat;  
import java.util.\*;  
  
  
public class Main{  
 public static void main(String[] argc){  
 Scanner sc= new Scanner(System.*in*);  
 System.*out*.println("Enter the unicode number:");  
 int unicode=sc.nextInt();  
  
 String pattern="0.00";  
 DecimalFormat df=new DecimalFormat(pattern);  
  
 if(Character.*isLetter*(unicode)){  
 System.*out*.println("You have entered letter!");  
 }  
  
  
 char charUni=(char) unicode;  
 System.*out*.println(charUni);  
  
 double result=(unicode\*27/27);  
 System.*out*.println("Before formatting the result:"+result);  
 System.*out*.println("After formatting the result:"+df.format(result));  
  
  
 }  
}

7) import java.util.\*;  
  
public class Main {  
 public static void main(String[] argc) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.println("Enter the date to be validated:");  
 String date = sc.nextLine();  
 String convDate = date.replace(",", "");  
  
 int month = Integer.*parseInt*(convDate.substring(0, 2));  
  
 int date\_ = Integer.*parseInt*(convDate.substring(2, 4));  
  
 int year = Integer.*parseInt*(convDate.substring(4, 8));  
  
 if (month == 1 || month == 3 || month == 5 || month == 7 || month == 8 || month == 10 || month == 12) {  
 if (date\_ <= 31) {  
 System.*out*.println("Valid Date");  
 }  
 else if (month == 4 || month == 6 || month == 9 || month == 11) {  
 if (date\_ <= 30) {  
 System.*out*.println("Valid Date");  
 } else {  
 System.*out*.println("Invalid Date");  
 }  
 }  
 }  
 else if (month == 2) {  
 if (year % 4 == 0) {  
 if (year % 100 == 0) {  
 if (year % 400 == 0) {  
 if (date\_ <= 29) {  
 System.*out*.println("leap year but Valid Date!");  
 } else {  
 System.*out*.println("not a leap year but Date is valid!");  
 }  
  
 }  
 }  
 }  
  
 }  
 else {  
 System.*out*.println("Invalid Date");  
 }  
  
  
 }  
}

8)import java.util.\*

public class Main{  
 public static void main(String[] argc){  
 char array[]={'A','B','C','a','b','c','0','1','2','$','\*','+','/',' '};  
  
 int b=0;  
 for(int i=0;i<14;i++){  
 b = array[i];  
 System.*out*.println(b);  
 }  
  
 }  
}

9) import java.util.\*;

public class Main {  
 public static void main(String[] argc) {  
 int[][] A = {{1, 2, 3, 4, 5}, {2, 3, 4, 5, 6}};  
 double[] power = new double[A[0].length];  
 for (int j = 0; j < A[0].length; j++) {  
 power[j] = Math.*pow*(A[0][j], A[1][j]);  
 }  
  
 for (int i = 0; i < A[0].length; i++) {  
 System.*out*.println(power[i]);  
 }  
 }  
}

10)import java.util.\*;

public class Main{  
 static void colsum(float mat[][]){  
 float sum=0;  
 int row=mat[0].length;  
 int col=mat.length;  
  
 for (int i = 0; i < mat[0].length; ++i) {  
 for (int j = 0; j < mat.length; ++j) {  
  
 sum = sum + mat[j][i];  
 }  
 mat[row][i]=sum;  
  
 sum=0;  
 }  
 for (int i = 0; i < mat.length; i++) {  
 for (int j = 0; j < mat[i].length; j++) {  
 System.*out*.print(mat[i][j]+" ");  
 }  
 System.*out*.print("\n");}  
  
 }  
 public static void main(String[] argc){  
  
  
 float[][] mat={{4,7,1,8},  
 {3,8,9,5},  
 {1,3,4,5},  
 {8,1,5,6},  
 {0,0,0,0}};  
 float sum=0;  
 *colsum*(mat);  
 }  
}

11) public class PrimeRange {  
  
 public static boolean checkPrime(int n){  
 if(n==1||n==0){  
 return false;  
 }  
  
 if(n==2){  
 return true;  
 }  
  
 for(int i=2;i\*i<n;i++){  
 return n%i != 0;  
 }  
  
 return true;  
 }  
  
 public static void main(String[] argc){  
 Scanner sc=new Scanner(System.*in*);  
 System.*out*.println("Enter the first number:");  
 int a=sc.nextInt();  
 System.*out*.println("Enter the last number:");  
 int b=sc.nextInt();  
  
 System.*out*.println("The prime numbers between " +a +" and "+b+" is:");  
 for(int j=a;j<=b;j++){  
 if(*checkPrime*(j)){  
 System.*out*.print(j+" ");  
 }  
 }  
  
  
 }  
}

12) public class Main {  
 public static void main(String[] argc) {  
 String[] names = {"Elena", "Thomas", "Hamilton", "Suzie", "Phil", "Matt", "Alex", "Emma", "John", "James", "Jane", "Emily", "Daniel", "Neda", "Aaron", "Kate"};  
 int[] time = {341, 273, 278, 329, 445, 402, 388, 275, 243, 334, 412, 393, 299, 343, 317, 265};  
  
 int min = 0;  
 for (int i = 0; i < time.length; i++) {  
 for (int j = i + 1; j < time.length; j++) {  
 int tmp1 = 0;  
 String tmp2 = null;  
 if (time[i] > time[j]) {  
 tmp1 = time[i];  
 time[i] = time[j];  
 time[j] = tmp1;  
  
 tmp2 = names[i];  
 names[i] = names[j];  
 names[j] = tmp2;  
 }  
 }  
 System.*out*.print(time[i] + " ");  
 System.*out*.println(names[i]);  
 }  
 System.*out*.println("First Fastest person is:" +names[0]+" time:"+time[0]);  
 System.*out*.println("Second Fastest person is:"+names[1]+" time:"+time[1]);  
 }  
}