1.

```
import java.util.Scanner;

public class Main {

     public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.print("Input the inital amount : ");
        double amount = in.nextDouble();

        System.out.print("Input the annual interest (percentage) : ");
        double interest = in.nextDouble();

        if (interest <= 0 || interest > 100) {
            System.out.println("Invalid input");
        }
        else {
            int year = 0;
            double balance = amount;
            while (balance <= 2*amount) {
                balance = balance + (interest/100 * balance);
                year++;
                System.out.printf("%s%d%s%.2f\n","After ",year,
                        " years the balance is ",balance);
            }
        }
    }
}
```

2.

```
import java.util.Scanner;

public class Main {


    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.println("Input the twelve monthly average temperatures
for 2011 : ");

        double highestTemp = in.nextDouble();
        int highestMonth = 1;
        for (int i = 2; i <= 12; i++) {
            double nextTemp = in.nextDouble();
            if (nextTemp > highestTemp) {
                highestMonth = i;
                highestTemp = nextTemp;
            }
        }
        if (highestMonth == 1) {
            System.out.print("January");
        }
        else if (highestMonth == 2) {
            System.out.print("February");
```

```
        }
        else if (highestMonth == 3) {
            System.out.print("March");
        }
        else if (highestMonth == 4) {
            System.out.print("April");
        }
        else if (highestMonth == 5) {
            System.out.print("May");
        }
        else if (highestMonth == 6) {
            System.out.print("June");
        }
        else if (highestMonth == 7) {
            System.out.print("July");
        }
        else if (highestMonth == 8) {
            System.out.print("August");
        }
        else if (highestMonth == 9) {
            System.out.print("September");
        }
        else if (highestMonth == 10) {
            System.out.print("October");
        }
        else if (highestMonth == 11) {
            System.out.print("November");
        }
        else {
            System.out.println("December");
        }
        System.out.println(" had the highest average temperature");
    }
}
```

3.

```
import java.util.Scanner;

public class Main {


    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.println("Input the conversion rate from UK pounds to
Euros: ");
        double exchangeRate = in.nextDouble();
        double nextAmount = -1; // initialise this to something other
than 0

        while (nextAmount != 0) {
            System.out.println("Enter an amount in UK pounds: ");
            nextAmount = in.nextDouble();
            if (nextAmount != 0) {
                System.out.printf("The equivalent mount in Euros is
%.2f\n",
```

```
                                    nextAmount * exchangeRate);
            }
            else {
                System.out.println("End!");
            }
        }
    }
}
```

4.

```
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.println("Input a word: ");
        String word = in.next();
        for (int i = 0; i < word.length(); i++) {
            System.out.println(word.charAt(i));
        }
    }
}
```

5.

```
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.println("Input a word: ");
        String word = in.next();
        for (int i = word.length()-1; i >= 0; i--) {
            System.out.print(word.charAt(i));
        }
    }
}
```

6.

```
public class Main {


    public static void main(String[] args) {
        final int ROWS = 10;
        final int COLUMNS = 10;

        for (int row = 1; row <= ROWS; row++) {
            // print out this row: :
            for (int col = 1; col <= COLUMNS; col++) {
                System.out.printf("%4d",row * col);
```

```
            }
            System.out.println();
        }
    }
}
```

7.

```
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.println("Input a word: ");
        String word = in.next();
        for (int len = 1; len <= word.length(); len++) {
            // print out all substrings of length len:
            for (int j = 0; j <= word.length()-len; j++) {
                System.out.println(word.substring(j,j+len));
            }
        }
    }
}
```

8.

```
import java.util.Scanner;

public class Main {


    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.println("Input a word: ");
        String word = in.next();
        System.out.printf("The number of vowels is
%d\n",countVowels(word));
    }

    /**
     Counts the number of vowels in a string.
     @param str the string
     @return the number of vowels in str
     */

    public static int countVowels(String str)
    {
        int noOfVowels = 0;
        for (int i = 0; i < str.length(); i++) {
            char ch = str.charAt(i);
            if (ch == 'A' || ch == 'a' ||
                ch == 'E' || ch == 'e' ||
                ch == 'I' || ch == 'i' ||
                ch == 'O' || ch == 'o' ||
                ch == 'U' || ch == 'u' ) {
```

```
                noOfVowels++;
            }
        }
        return noOfVowels;
    }
}
```

9.

```
import java.util.Scanner;

public class Main {


    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.println("Input an initial bank balance: ");
        double balance = in.nextDouble();
        System.out.println("Input the yearly interest rate (0..100): ");
        double interest = in.nextDouble();
        System.out.println("Input the number of years: ");
        int years = in.nextInt();

        double newBalance = accumulateBalance(balance,interest,years);
        System.out.printf("The final balance is %10.2f\n",newBalance);

    }


    /**
     Calculates the balance in an account after a number of years
     of annual accumulation of interest.
     @param initialAmount the amount initially in the account
     @param yearlyInterest the yearly interest rate
     @param noOfYears the number of years the amount will be invested for
     @return amount in the account after noOfYears years
     */

    public static double accumulateBalance(double initialAmount,
            double yearlyInterest, int noOfYears)
    {
        double balance = initialAmount;
        for (int i = 0; i < noOfYears; i++) {
            balance = balance + (yearlyInterest/100 * balance);
        }
        return balance;
    }
}
```