Java Programming

Digital Assignment - II

Aadhitya Swarnesh

- 21 February 2020

Question 1 :

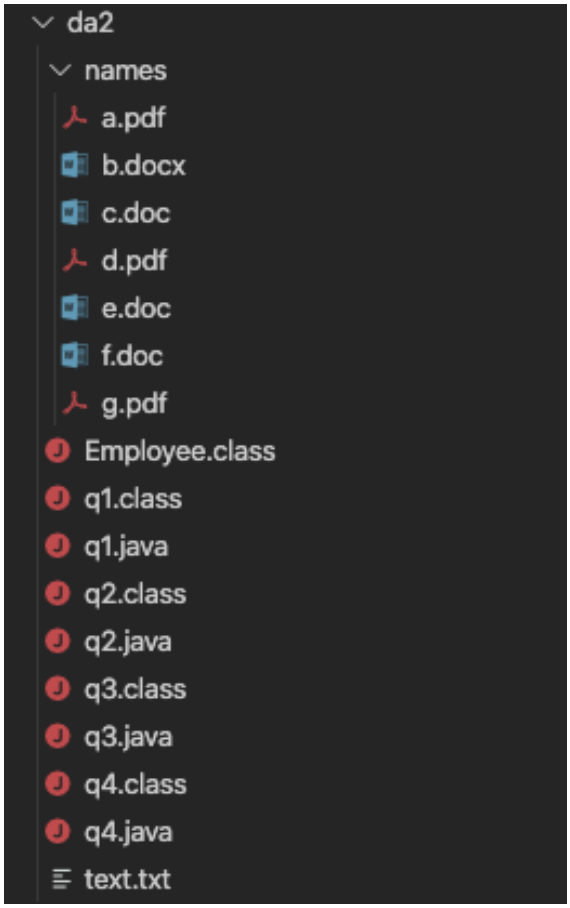
```
import java.io.*;
import java.util.*;

class q1
{
   public static void main(String args[]) throws IOException
   {
      File file = new File("text.txt");
      Scanner sc = new Scanner(file);
      int llen = 0, slen = 99999999, len = 0;
      String arr[];
      String sho="", lon="";
      while(sc.hasNextLine())
      {
         arr = sc.nextLine().split(" ");
         for(int i=0;i<arr.length;i++)
         {
            len = arr[i].length();
            if(len >= llen)
            {
               llen = len;
               lon = arr[i];
            }
            if(slen >= len && len!=0)
            {
               slen = len;
```

```
                sho = arr[i];
            }
        }
    }
    System.out.println("The last longest word is : " + lon + " and its length is : " + llen);
    System.out.println("The last shortest word is : " + sho + " and its length is : " + slen);
  }
}
```

```
(base) Aadhityas-MacBook-Air:da2 aadhitya$ javac q1.java
(base) Aadhityas-MacBook-Air:da2 aadhitya$ java q1
The last longest word is : protections and its length is : 11
The last shortest word is : a and its length is : 1
(base) Aadhityas-MacBook-Air:da2 aadhitya$
```

FOLDER ORGANIZATION :



Question 2 :

```
import java.io.*;
import java.util.*;

class q2
{
   public static void main(String[] args)
   {
      System.out.println("Working Directory = " + System.getProperty("user.dir"));
      String maindirpath = System.getProperty("user.dir") + "/names";
      try {
         File file = new File(maindirpath);
         if(file.canRead())
         {
            System.out.println("The directory has read permission.");
         }
         else
         {
            System.out.println("The directory does not have read permission.");
         }
         if(file.canWrite())
         {
            System.out.println("The directory has write permission.");
         }
         else
         {
            System.out.println("The directory does not have write permission.");
         }
         if(file.canRead() || file.canWrite())
         {
            File arr[] = file.listFiles();
            String pdfs[] = new String[arr.length];
            String docs[] = new String[arr.length];
            int p=0, d=0, i;
            for(i=0;i<arr.length;i++)
            {
               if(arr[i].getName().endsWith(".pdf"))
               {
                  pdfs[p++] = arr[i].getName();
               }
               else if(arr[i].getName().endsWith(".doc"))
               {
                  docs[d++] = arr[i].getName();
```

```
            }
        }
        System.out.println("The files ending with '.pdf' are : ");
        for(i=0;i<p;i++)
        {
            System.out.println(pdfs[i]);
        }
        System.out.println("The files ending with '.doc' are : ");
        for(i=0;i<d;i++)
        {
            System.out.println(docs[i]);
        }
      }
    } catch (Exception e) {
        System.out.println("Error");
    }
  }
}
```

```
(base) Aadhityas-MacBook-Air:da2 aadhitya$ javac q2.java
(base) Aadhityas-MacBook-Air:da2 aadhitya$ java q2
Working Directory = /Users/aadhitya/Documents/VS-Code/JP/da2
The directory has read permission.
The directory has write permission.
The files ending with '.pdf' are :
a.pdf
g.pdf
d.pdf
The files ending with '.doc' are :
c.doc
e.doc
f.doc
(base) Aadhityas-MacBook-Air:da2 aadhitya$
```

Question 3 :

```
import java.util.*;

class q3
{
   public static void main(String args[])
   {
      Scanner sc = new Scanner(System.in);
      ArrayList<Integer> arr = new ArrayList<Integer>();

      //  Insertion
      System.out.println("Enter the number of elements to be entered : ");
      int n = sc.nextInt();
      int i, num;
      System.out.println("Enter the elements : ");
      for(i=0;i<n;i++)
      {
         arr.add(sc.nextInt());
      }

      System.out.println("-------------------------------------------------------------------------");

      //  Retrieve element
      System.out.println("Enter the index position of the required element : ");
      int pos = sc.nextInt() - 1;
      if(pos < arr.size())
      {
         System.out.println("The required element is : " + arr.get(pos));
      }
      else
      {
         System.out.println("The entered index position is invalid.");
      }

      System.out.println("-------------------------------------------------------------------------");

      //  Update element
      System.out.println("Enter the index position of the element to be changed : ");
      pos = sc.nextInt() - 1;
      if(pos < arr.size())
      {
         System.out.println("Enter the element to be updated to : ");
         num = sc.nextInt();
```

```
            arr.set(pos, num);
            System.out.println("The required element has been updated.");
        }
        else
        {
            System.out.println("The entered index position is invalid.");
        }

        System.out.println("--------------------------------------------------------------------------");

        //  Remove element
        System.out.println("Enter the index position of the element to be removed : ");
        pos = sc.nextInt() - 1;
        if(pos < arr.size())
        {
            num = arr.get(pos);
            arr.remove(pos);
            System.out.println("The element in that location is : " + num + " and it has been
removed");
        }
        else
        {
            System.out.println("The entered index position is invalid.");
        }

        System.out.println("--------------------------------------------------------------------------");

        // Search element
        System.out.println("Enter the element to be searched : ");
        num = sc.nextInt();
        if(arr.contains(num))
        {
            System.out.println("The entered element " + num + " is present in the array-list.");
        }
        else
        {
            System.out.println("The entered element " + num + " is not present in the array-
list.");
        }

        System.out.println("--------------------------------------------------------------------------");

        // Sort elements
        Collections.sort(arr);
```

```
        System.out.println("The elements of the array-list in sorted order is : ");
        for(i=0;i<arr.size();i++)
        {
            System.out.println(arr.get(i));
        }

        System.out.println("--------------------------------------------------------------------------------");

    }
}
```

```
(base) Aadhityas-MacBook-Air:da2 aadhitya$ javac q3.java
(base) Aadhityas-MacBook-Air:da2 aadhitya$ java q3
Enter the number of elements to be entered :
5
Enter the elements :
1
3
2
5
4
--------------------------------------------------------------------------------
Enter the index position of the required element :
5
The required element is : 4
--------------------------------------------------------------------------------
Enter the index position of the element to be changed :
3
Enter the element to be updated to :
122
The required element has been updated.
--------------------------------------------------------------------------------
Enter the index position of the element to be removed :
2
The element in that location is : 3 and it has been removed
--------------------------------------------------------------------------------
Enter the element to be searched :
122
The entered element 122 is present in the array-list.
--------------------------------------------------------------------------------
The elements of the array-list in sorted order is :
1
4
5
122
--------------------------------------------------------------------------------
(base) Aadhityas-MacBook-Air:da2 aadhitya$
```

Question 4 :

```
import java.util.*;

class Employee
{
   String name;
   int age;
   Employee(String na, int ag)
   {
      name = na;
      age = ag;
   }
   int getAge()
   {
      return(this.age);
   }
   String getName()
   {
      return(this.name);
   }
}

class q4
{
   public static void main(String args[])
   {
      Scanner sc = new Scanner(System.in);
      HashSet<Employee> arr = new HashSet<Employee>();
      int cho, age;
      String name;
      Iterator<Employee> itr;
      boolean flag;
      do
      {
         System.out.println("Make a choice : \n1)Enter a element. \n2)Remove an element.
\n3)Search for an element. \n4)Exit \nEnter your choice : ");
         cho = sc.nextInt();
         if(cho == 1)
         {
            System.out.println("Enter the name and the age of the employee.");
            name = sc.next();
            age = sc.nextInt();
            arr.add(new Employee(name, age));
```

```
        }
        else if(cho == 2)
        {
           System.out.println("Enter the name of the employee to be terminated : ");
           name = sc.next();
           itr = arr.iterator();
           flag = false;
           while(itr.hasNext())
           {
              if(name.equalsIgnoreCase(itr.next().getName()))
              {
                 flag = true;
                 itr.remove();
                 System.out.println("The employee has been successfully terminated.");
              }
           }
           if(flag == false)
           {
              System.out.println("The employee with the entered name does not exist.");
           }
        }
        else if(cho == 3)
        {
           System.out.println("Enter the name of the employee to be searched : ");
           name = sc.next();
           itr = arr.iterator();
           flag = false;
           while(itr.hasNext())
           {
              if(name.equalsIgnoreCase(itr.next().getName()))
              {
                 flag = true;
                 System.out.println("The employee with the entered name " + name + " exists
and their age is : " + itr.next().getAge() + " .");
              }
           }
           if(flag == false)
           {
              System.out.println("The employee with the entered name does not exist.");
           }
        }
        else if(cho == 4)
        {
           System.out.println("End of Program.");
```

```
        }
        else
        {
           System.out.println("Enter a valid choice.");
        }
        System.out.println("--------------------------------------------------------------------------------");
      }while(cho!=4);
   }
}
```

```
(base) Aadhityas-MacBook-Air:da2 aadhitya$ javac q4.java
(base) Aadhityas-MacBook-Air:da2 aadhitya$ java q4
Make a choice :
1)Enter a element.
2)Remove an element.
3)Search for an element.
4)Exit
Enter your choice :
1
Enter the name and the age of the employee.
kabs
10
--------------------------------------------------------------------------------
Make a choice :
1)Enter a element.
2)Remove an element.
3)Search for an element.
4)Exit
Enter your choice :
1
Enter the name and the age of the employee.
sum
22
--------------------------------------------------------------------------------
Make a choice :
1)Enter a element.
2)Remove an element.
3)Search for an element.
4)Exit
Enter your choice :
1
Enter the name and the age of the employee.
har
55
--------------------------------------------------------------------------------
Make a choice :
1)Enter a element.
2)Remove an element.
3)Search for an element.
4)Exit
Enter your choice :
1
Enter the name and the age of the employee.
arp
100
--------------------------------------------------------------------------------
```

```
--------------------------------------------------------------------------------
Make a choice :
1)Enter a element.
2)Remove an element.
3)Search for an element.
4)Exit
Enter your choice :
3
Enter the name of the employee to be searched :
rad
The employee with the entered name does not exist.
--------------------------------------------------------------------------------
Make a choice :
1)Enter a element.
2)Remove an element.
3)Search for an element.
4)Exit
Enter your choice :
3
Enter the name of the employee to be searched :
kabs
The employee with the entered name kabs exists and their age is : 55 .
--------------------------------------------------------------------------------
Make a choice :
1)Enter a element.
2)Remove an element.
3)Search for an element.
4)Exit
Enter your choice :
2
Enter the name of the employee to be terminated :
kk
The employee with the entered name does not exist.
--------------------------------------------------------------------------------
Make a choice :
1)Enter a element.
2)Remove an element.
3)Search for an element.
4)Exit
Enter your choice :
2
Enter the name of the employee to be terminated :
sum
The employee has been successfully terminated.
--------------------------------------------------------------------------------
Make a choice :
1)Enter a element.
2)Remove an element.
3)Search for an element.
4)Exit
Enter your choice :
3
Enter the name of the employee to be searched :
sum
The employee with the entered name does not exist.
--------------------------------------------------------------------------------
```

```
--------------------------------------------------------------------------------
Make a choice :
1)Enter a element.
2)Remove an element.
3)Search for an element.
4)Exit
Enter your choice :
4
End of Program.
--------------------------------------------------------------------------------
(base) Aadhityas-MacBook-Air:da2 aadhitya$
```