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Summative

Assessment 1: Systems

Development 1

(HSYD100-1)

1.

```
1  import java.util.ArrayList;
2  import java.util.Scanner;
3
4  public class GuessGame {
5  public static void main(String[] args) {
6
7      Scanner input = new Scanner(System.in);
8      ArrayList items = new ArrayList();
9
10     items.add("Nissan");
11     items.add("Toyota");
12     items.add("Mitsubishi");
13     items.add("Mazda");
14     items.add("Honda");
15     items.add("Subaru");
16     items.add("Porsche");
17     items.add("BMW");
18     items.add("Mini");
19     items.add("Vw");
20
21     boolean playAgain = true;
22
23     while (playAgain) {
24         System.out.println("\nITEMS");
25         System.out.printf("%-10s%s\n", "Index", "Value");
26         for (int i = 0; i < items.size(); i++) {
27             System.out.printf("%-10d%s\n", i, items.get(i));
28         }
29
30         int randomIndex = (int) (Math.random() * items.size());
31         String randomItem = items.get(randomIndex);
32
33         int numberofguesses = 0;
34         boolean correctGuess = false;
35         while (numberofguesses < 3 && !correctGuess) {
36             System.out.print("\nEnter a guess: ");
37             String guess = input.nextLine();
38             if (guess.equalsIgnoreCase(randomItem)) {
39                 System.out.println("Well done! You guessed correctly!");
```

```

40         items.remove(randomIndex);
41         correctGuess = true;
42     } else {
43         numberOfguesses++;
44         if (numberOfguesses == 1) {
45             System.out.printf("Incorrect! Here's a clue: The first letter is '%s'\n", randomItem.charAt(0));
46         } else if (numberOfguesses == 2) {
47             System.out.printf("Incorrect! Here's another clue: The item has %d letters\n", randomItem.length());
48         } else {
49             System.out.printf("Sorry, you didn't guess correctly. The correct answer was '%s'\n", randomItem);
50         }
51     }
52 }
53
54 System.out.printf("\nNumber of items remaining in list: %d", items.size());
55
56
57 System.out.print("\n\nWould you like to play again? (Yes/No): ");
58 String playAgainAnswer = input.nextLine();
59 if (!playAgainAnswer.equalsIgnoreCase("Yes")) {
60     playAgain = false;
61 }
62 }
63 }
64 }

```

2.

```

1  public class Election {
2      private String candidate;
3
4      public Election() {}
5      public Election(String nm, int nVotes) {
6          candid= nVotes;
7      }
8      public void setCandidate(String nm) {
9          candidate = nm;
10     }
11     public int setNumVotes(int newNum){
12         i= newNum;
13         return oldNum;
14     }
15     public int getNumVotes(){
16     }
17     public String toString()
18     {
19         String str= "Candidate: "+candidate+"\nNumber of Votes: ";
20         return str;
21     }
22 }

```

2A.

```
1 import javax.swing.JOptionPane;
2 public class TestElection {
3
4     public static void main(String[] args) {
5
6         int numElections = Integer.parseInt(JOptionPane.showInputDialog("Enter number of elections:"));
7
8         Election[] elections = new Election[numElections];
9     }
10 }
```

2B.

```
1 import javax.swing.JOptionPane;
2
3 public class TestElection {
4     public static void main(String[] args) {
5
6         int numElections = Integer.parseInt(JOptionPane.showInputDialog("Enter amount of elections:"));
7
8         Election[] elections = new Election[numElections];
9
10        for (int i = 0; i < numElections; i++) {
11            String candidateName = JOptionPane.showInputDialog("Enter name of candidate " + (i+1) + ":");
12
13            int numVotes = Integer.parseInt(JOptionPane.showInputDialog("Enter amount of votes for candidate " + (i+1) + ":"));
14
15            elections[i] = new Election(candidateName, numVotes);
16        }
17    }
18 }
19 }
```

2C.

```
1 import javax.swing.JOptionPane;
2
3 public class TestElection {
4     public static void main(String[] args) {
5
6         int numElections = Integer.parseInt(JOptionPane.showInputDialog("Enter amount of elections:"));
7
8         Election[] elections = new Election[numElections];
9
10        for (int i = 0; i < numElections; i++) {
11
12            String candidateName = JOptionPane.showInputDialog("Enter name of candidate " + (i+1) + ":");
13
14            int numVotes = Integer.parseInt(JOptionPane.showInputDialog("Enter amount of votes for candidate " + (i+1) + ":"));
15
16            elections[i] = new Election(candidateName, numVotes);
17        }
18
19        int totalVotes = 0;
20
21        for (int i=0; i<numElections; i++) {
22            totalVotes += elections[i].getNumVotes();
23        }
24    }
25 }
```

```

22         totalVotes += elections[i].getNumVotes();
23     }
24
25     System.out.println("\nCandidate\t Votes \t % Of Total Votes");
26     for(int j=0;j<elections.length;j++){
27
28         double percentOfTotal=((double)elections[j].getNumVotes()/((double)totalVotes)*100.00;
29
30         System.out.printf("%-15s %-10d %.2f\n",elections[j].getCandidate(),elections[j].getNumVote(),percentOfTotal);
31     }
32
33     Election winner=elections[0];
34     for(int k=1;k<elections.length;k++){
35         if(elections[k].getNumVote()>winner.getNumVote()){
36             winner=elections[k];
37         }
38     }
39
40     System.out.println("\nTotal Votes: " + totalVotes);
41     System.out.println("Winner of election is : " + winner.getCandidate());
42
43 }
44 }

```

2D.

```

1  boolean isEligible = false;
2
3      for (int j=0; j<elections[i].getNumCandidates(); j++) {
4
5          if (elections[i].getCandidateVotes(j) >= 4000) {
6              isEligible = true;
7          }
8      }

```

2E.

```

1  import javax.swing.JOptionPane;
2
3  StringBuilder messageBuilder = new StringBuilder();
4      for(Election e : eligibleElections){
5          messageBuilder.append("\n");
6          String[] candidatesNamesArr= e.getCandidates();
7          for(String name:candidatesNamesArr){
8              messageBuilder.append(name).append(", ");
9          }
10     }
11     JOptionPane.showMessageDialog(null,"The names of all qualified candidates are:"+messageBuilder.toString());

```