# Software Development TABA

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# Higher Diploma in Science in Computing: HDWD\_SEPOL

## Question 1

### IPO

|  |  |  |
| --- | --- | --- |
| Input | Process | Output |
| Full\_Name | 1. Sets the name 2. Generates password with following checks; 3. Removes all a,e,t and adds to a count 4. Adds an extra vowel if found 5. Replaces spaces with ‘S&?’ 6. Adds count from (a) to end of password string 7. Gets password 8. Asks user do they want to enter another name? 9. If no, exits while loop 10. If yes starts this process again | password |

## Question 2

### IPO

|  |  |  |
| --- | --- | --- |
| Input | Process | Output |
| NumOfParagraphs  Text for paragraph | 1. Input paragraph text ‘NumofParagraphs’ times 2. Set paragraph array values 3. Loop through each array entry and count vowels 4. Add vowel count into a count array for each paragraph 5. Set count to 0 after each paragraph 6. Return count array 7. Loop through count array and display on screen | Vowel count of each paragraph |

## Testing

|  |  |  |
| --- | --- | --- |
| Input | Expected Result | Actual Result |
| Fullname: JANE dOe | JNS&?dOO3 | JNS&?dOO3 |
| Another try: Yes  Fullname: conOr MUrphy | conOr MUrphy | coonOOrS&?MUUrphy0 |
| Another try: No | Enter Paragraph number(next section) | Enter Paragraph number(next section) |
| paragraphCount=3  paragraph1: “YOU are your BEST thing!”  paragraph2: “Omar learned Java. Did John learn C? Emma programs in Java and Scala.”  Paragraph3: “Who in the world am I? Ah, that is the GreAT puzzle!” | Vowel counts for paragraph 1 is 8  Vowel counts for paragraph 2 is 21  Vowel counts for paragraph 3 is 14 | Vowel counts for paragraph 1 is 8  Vowel counts for paragraph 2 is 21  Vowel counts for paragraph 3 is 14 |

## Appendix

### ItemGeneratorApp.java

//Glenda Morris: x21110646

//Higher Diploma in Science in Computing, Year 1, HDWD\_SEPOL

//Question 1b: Approach ID: MFNA1

import javax.swing.JOptionPane;

public class ItemGeneratorApp{

public static void main(String[] args){

//vars

int numOfPara;

String[] paragraphArr;

int[] vowelCount;

int genPw=0;

int num;

while (genPw==0){

//vars

String fullName=JOptionPane.showInputDialog(null,"Enter in your full name");

String password;

//declare obj

ItemGenerator p;

p=new ItemGenerator();

//set

p.setPassword(fullName);

//compute

p.computePassword();

//get

password=p.getPassword();

//output

System.out.println("Password for "+fullName+" is: "+password);

genPw = JOptionPane.showConfirmDialog(null, "Do you want input another full name?");

}

numOfPara=Integer.parseInt(JOptionPane.showInputDialog(null,"Enter in the number of paragraphs you will be entering"));

//set array length

paragraphArr=new String[numOfPara];

vowelCount=new int[numOfPara];

//Populate array with paragraphs

for(int i=0;i<paragraphArr.length;i++){

paragraphArr[i]=JOptionPane.showInputDialog(null,"Enter in your paragraph");

}

//declare obj

ItemGenerator para;

para=new ItemGenerator();

//set

para.setPara(paragraphArr);

//Compute

para.computeVowelCount();

//get

vowelCount=para.getVowelCount();

//Loop through array to get all the entries of count to print on screen

for(int j=0;j<vowelCount.length;j++){

//num not needed, its just for better presentation to user, to say which paragraphs count it is

num=j+1;

System.out.println("Vowel counts for paragraph "+num+" is "+vowelCount[j]);

}

}

}

### ItemGenerator.java

//Glenda Morris: x21110646

//Higher Diploma in Science in Computing, Year 1, HDWD\_SEPOL

//Question 1a: Assigned Item password

//Question 2a: Functionality iD: F2

public class ItemGenerator{

//vars

private String fullName;

private String password;

private int charEliminatedCount;

private int strLen;

private String [] paragraphArr;

private int [] vowelCountArr;

private int vowelCount;

private int paraLen;

//constructor

public ItemGenerator(){

charEliminatedCount=0;

vowelCount=0;

password="";

}

//set: This method will take the user input entered and set it to a private variable for further use

public void setPassword(String fullName){

this.fullName=fullName;

strLen = fullName.length();

}

//set: This method will take the users input of paragraphs via an array and set it to a private variable for further use

public void setPara(String [] paragraphArr){

this.paragraphArr=paragraphArr;

vowelCountArr=new int[paragraphArr.length];

}

//compute: This method will create the password based on user input and conditions below

public void computePassword(){

for(int i=0; i<strLen; i++){

//1.The letters ‘a’, ’e’, and ‘t’ from the given full name will not be used in the password

if (fullName.charAt(i)=='a' || fullName.charAt(i)=='A' || fullName.charAt(i)=='e' ||fullName.charAt(i)=='E' || fullName.charAt(i)=='t' || fullName.charAt(i)=='T'){

charEliminatedCount++;

}

//2. Each vowel (except ‘a’ and ‘e’ which are eliminated) is going to be added twice

else if (fullName.charAt(i)=='i' || fullName.charAt(i)=='I' || fullName.charAt(i)=='o' || fullName.charAt(i)=='O' || fullName.charAt(i)=='u' || fullName.charAt(i)=='U'){

password+=fullName.charAt(i)+""+fullName.charAt(i);

}

//3. Each space is replaced by the letter ‘S’ followed by a ‘&’ and a ‘?’

else if (fullName.charAt(i) == ' '){

password+="S&?";

}

//4. All the other characters will remain the same as in the given full name

else {

password+=fullName.charAt(i);

}

}

//5. The password ends with the total number of letters eliminated (i.e. the total number of letters ‘a’, ’e’, and ‘t’ from the given full name that were not used in the password)

password=password+""+charEliminatedCount;

}

//compute: This method counts vowels in each paragraph and stores count of each in an array

public void computeVowelCount(){

for(int i=0;i<paragraphArr.length;i++){

paraLen = paragraphArr[i].length();

String para=paragraphArr[i];

for(int j=0; j<paraLen;j++){

if (paragraphArr[i].charAt(j)=='a' || paragraphArr[i].charAt(j)=='A' || paragraphArr[i].charAt(j)=='e' || paragraphArr[i].charAt(j)=='E' || paragraphArr[i].charAt(j)=='i' || paragraphArr[i].charAt(j)=='I' || paragraphArr[i].charAt(j)=='o' || paragraphArr[i].charAt(j)=='O' || paragraphArr[i].charAt(j)=='u' || paragraphArr[i].charAt(j)=='U'){

vowelCount++;

}

}

vowelCountArr[i]=vowelCount;

vowelCount=0;

}

}

//get: This will return the password to display on screen

public String getPassword(){

return password;

}

//get: This will return the vowel count of each paragraph in an array

public int [] getVowelCount(){

return vowelCountArr;

}

}