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; a. Removes all a,e,t and adds to a count b. Adds an extra vowel if found c. Replaces spaces with 'S&?' d. Adds count from (a) to end of password string 3. Gets password 4. Asks user do they want to enter another name? a. If no, exits while loop b. 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	Vowel count of each paragraph

	5. Set count to 0 after each paragraph 6. Return count array 7. Loop through count array and display on screen	

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;
        }
}
```