|  |  |
| --- | --- |
| **Problems** | **Solutions** |
| * Encrypt.java was hard to figure out due to the possibility of there being multiple words | * Used split method and nested for loops to separate word from chars inside word |
| * AddPairs.java was hard to solve due to my program being written so that digits were added from back to front   + As such, if the number had an uneven amount of digits, the sum would be incorrect | * Used substring and an if-else statement to add from front to end instead of from end to front |

**FirstLast**

**import** java.util.Scanner;

*/\*\**

*\* File: FirstLast*

*\* Created: February 12, 2018*

*\* Author: Thomass Muir*

*\**

*\* A program that prints out the 1st and last character*

*\* of a string entered by the user. (method charAt)*

*\**

*\*/*

**public class** FirstLast {

**public static void** main(String[] args) {

*//Import scanner*

Scanner sc = **new** Scanner(System.***in***);

*//Declare variables*

String userInput;

*//Ask user for string*

System.***out***.println(**"Please enter a String:"**);

userInput = sc.nextLine();

*//Print first and last character of the String*

System.***out***.println(**"The first character of the String is: "** + userInput.charAt(0) +

**"\nThe last character of the String is: "** + userInput.charAt(userInput.length() - 1));

}

}

**Half**

**import** java.util.Scanner;

*/\*\**

*\* File: Half*

*\* Created: February 12, 2018*

*\* Author: Thomass Muir*

*\**

*\* A programs that asks the user for a String and breaks it in half,*

*\* printing the first half on one line and the last half on another.*

*\* (method: substring)*

*\**

*\*/*

**public class** Half {

**public static void** main(String[] args) {

*//Import scanner*

Scanner sc = **new** Scanner(System.***in***);

*//Declare variables*

String userInput;

**int** midOfStr;

*//Ask user for string*

System.***out***.println(**"Please enter a String:"**);

userInput = sc.nextLine();

*//Determine the middle of the string*

midOfStr = userInput.length() / 2;

*//Print first half of String on one line*

*//Print second half of String on next line*

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

System.***out***.println(userInput.substring(0, midOfStr));

System.***out***.println(userInput.substring(midOfStr));

}

}

**Reverse**

**import** java.util.Scanner;

*/\*\**

*\* File: Reverse*

*\* Created: February 12, 2018*

*\* Author: Thomass Muir*

*\**

*\* A program that prints the reverse String*

*\* of a String entered by the user.*

*\**

*\*/*

**public class** Reverse {

**public static void** main(String[] args) {

*//Import scanner*

Scanner sc = **new** Scanner(System.***in***);

*//Declare variables*

String userInput;

String reverseInput;

*//Ask user for string*

System.***out***.println(**"Please enter a String:"**);

userInput = sc.nextLine();

*//Reverse userInput*

reverseInput = **new** StringBuffer(userInput).reverse().toString();

*//Print reverse*

System.***out***.print(reverseInput);

}

}

**HiddenPassword**

**import** java.util.Scanner;

*/\*\**

*\* File: HiddenPassword*

*\* Created: February 12, 2018*

*\* Author: Thomass Muir*

*\**

*\* A program that accepts a String of characters and*

*\* prints out a String with the same number of characters,*

*\* with all characters except the space, replaced by the given character.*

*\**

*\*/*

**public class** HiddenPassword {

**public static void** main(String[] args) {

*//Import scanner*

Scanner sc = **new** Scanner(System.***in***);

*//Declare variables*

String userInput;

**char** userChar;

**char**[] wordArray;

*//Ask user for String*

System.***out***.println(**"Please enter a String:"**);

userInput = sc.nextLine();

wordArray = userInput.toCharArray(); *//Make String into char Array*

*//Ask user for char*

System.***out***.println(**"Please enter a character:"**);

userChar = sc.next().charAt(0);

*//for loop to replace each character with given char*

*//leaves spaces as is*

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

**if** (wordArray[i] == **' '**){

System.***out***.print(**" "**);

}

**else** {

System.***out***.print(userChar);

}

}

}

}

**AddUnicodes**

**import java.util.Scanner;**

***/\*\****

***\* File: AddUnicodes***

***\* Created: February 12, 2018***

***\* Author: Thomass Muir***

***\****

***\* A program which prompts the user for a String and then***

***\* prints out the sum of the Unicodes of each of the characters.***

***\****

***\*/***

**public class AddUnicodes {**

**public static void main(String[] args) {**

***//Import scanner***

**Scanner sc = new Scanner(System.*in*);**

***//Declare variables***

**String userInput;**

**int numberCount = 0;**

***//Ask user for String***

**System.*out*.println("Please enter a String:");**

**userInput = sc.nextLine();**

***//Adds each individual character according to Unicode***

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

**numberCount += (userInput.charAt(i));**

**}**

**System.*out*.print("The sum of the Unicodes for each of the characters is: " + numberCount);**

**}**

**}**

**MakeUppercase**

**import** java.util.Scanner;

*/\*\**

*\* File: MakeUppercase*

*\* Created: February 12, 2018*

*\* Author: Thomass Muir*

*\**

*\* A program which changes a String to its upper case*

*\* equivalent.*

*\**

*\*/*

**public class** MakeUppercase {

**public static void** main(String[] args) {

*//Import scanner*

Scanner sc = **new** Scanner(System.***in***);

*//Declare variables*

String userInput;

*//Ask user for String*

System.***out***.println(**"Please enter a String:"**);

userInput = sc.nextLine();

*//Make all characters in String UpperCase*

System.***out***.print(userInput.toUpperCase());

}

}

**Encrypt**

**import** java.util.Scanner;

*/\*\**

*\* File: Encrypt*

*\* Created: February 12, 2018*

*\* Author: Thomass Muir*

*\**

*\* A program that encrypts user-inputed Strings to match the following criteria:*

*\* first and last character of each string are exchanged.*

*\* middle characters of each string are shifted to the character two after it in the ASCII*

*\* table (works for non-letters as well.)*

*\* spaces are left alone*

*\**

*\**

*\*/*

**public class** Encrypt {

**public static void** main(String[] args) {

*//Import scanner*

Scanner sc = **new** Scanner(System.***in***);

*//Declare variables*

String userInput;

String[] wordArray;

*//Ask user for String*

System.***out***.println(**"Please enter a String:"**);

userInput = sc.nextLine();

*//Split String according to how many words there are*

wordArray = userInput.split(**" "**);

*//Nested for loop through each word then perform encryption*

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

*//Variables to determine first and last char of String*

**char** firstLetter;

**char** lastLetter;

firstLetter = wordArray[i].charAt(0);

lastLetter = wordArray[i].charAt(wordArray[i].length() - 1);

*//Variable for middle chars*

*//Set String to nothing*

String midChars = **""**;

*//Encrypt middle chars*

**for** (**int** j = 1; j < wordArray[i].length() - 1; j++){

midChars += (**char**)(wordArray[i].charAt(j) + 2);

}

*//Print out encryption*

System.***out***.print(lastLetter + midChars + firstLetter + **" "**);

}

}

}

**ChangeHalf**

**import** java.util.Scanner;

*/\*\**

*\* File: ChangeHalf*

*\* Created: February 12, 2018*

*\* Author: Thomass Muir*

*\**

*\* A program that interchanges the first and the second half of*

*\* the string entered by user. If the string has even length,*

*\* the middle character does not move.*

*\**

*\*/*

**public class** ChangeHalf {

**public static void** main(String[] args) {

*//Import scanner*

Scanner sc = **new** Scanner(System.***in***);

*//Declare variables*

String userInput;

String firstHalf, secondHalf;

**int** midOfStr;

**char** middleLetter;

*//Ask user for String*

System.***out***.println(**"Please enter a String:"**);

userInput = sc.nextLine();

*//If userInput does not have an even amount of Characters*

*//Leave the middle char alone*

*//Switch the first and second half of the String*

**if** (userInput.length() % 2 != 0){

middleLetter = userInput.charAt(userInput.length()/2);

midOfStr = userInput.length() / 2;

firstHalf = userInput.substring(0, midOfStr);

secondHalf = userInput.substring(midOfStr + 1);

System.***out***.print(secondHalf + middleLetter + firstHalf);

}

**else** { *//If userInput has an even amount of characters, only switch the halves*

midOfStr = userInput.length() / 2;

firstHalf = userInput.substring(0, midOfStr);

secondHalf = userInput.substring(midOfStr);

System.***out***.print(secondHalf + firstHalf);

}

}

}

**AddDigits**

**import** java.util.Scanner;

*/\*\**

*\* File: AddDigits*

*\* Created: February 12, 2018*

*\* Author: Thomass Muir*

*\**

*\* A program that outputs the sum of each digit in a number*

*\* entered by the user.*

*\**

*\*/*

**public class** AddDigits {

**public static void** main(String[] args) {

*//Import scanner*

Scanner sc = **new** Scanner(System.***in***);

*//Declare variables*

**int** userInput;

**int** addToTotal = 0;

*//Ask user for int*

System.***out***.println(**"Please enter a number:"**);

userInput = sc.nextInt();

*//Repeat until the User Input == 0*

**while** (userInput!= 0){

addToTotal += userInput % 10; *//Finds last digit in current number, adds it to sum*

userInput/= 10; *//Gets rid of last digit in current number*

}

System.***out***.println(**"The sum of each digit in your number is: "** + addToTotal);

}

}

**AddPairs**

**import** java.util.Scanner;

*/\*\**

*\* File: AddPairs*

*\* Created: February 12, 2018*

*\* Author: Thomass Muir*

*\**

*\* A program that divides a number entered by the users into a*

*\* set of two digits numbers (if the number has odd number of digits, the last number is*

*\* only one digit), then outputs the sum of the set of numbers.*

*\**

*\*/*

**public class** AddPairs {

**public static void** main(String[] args) {

*//Import scanner*

Scanner sc = **new** Scanner(System.***in***);

*//Declare variables*

String userInput;

**int** interval = 2;

**int** possibleStrings;

**int** place = 0;

**int** sum = 0;

*//Ask user for String*

System.***out***.println(**"Please enter a number:"**);

userInput = sc.nextLine();

*//Parses String into int*

**int** userInt = Integer.*parseInt*(userInput);

*//Determine how many pairs of numbers there are in digit*

possibleStrings = userInput.length() / interval;

*//Repeat until there are no pairs of numbers left*

*//Add pairs*

**while** (possibleStrings != 0) {

String newPair = userInput.substring(place, place + 2);

sum += Integer.*parseInt*(newPair);

place += 2;

possibleStrings--;

}

*//If there's an odd number of digits, add last number and print sum*

*//Else, just pring sum*

**if** (userInput.length() % 2 != 0) {

sum += userInt % 10;

System.***out***.println(**"\nThe sum of each digit in your number is: "** + sum);

} **else** {

System.***out***.println(**"\nThe sum of each digit in your number is: "** + sum);

}

}

}

**BuildNumber**

**import** java.util.Scanner;

*/\*\**

*\* File: BuildNumber*

*\* Created: February 12, 2018*

*\* Author: Thomass Muir*

*\**

*\* A program that “builds” a new number by joining two*

*\* numbers entered by the user,*

*\* then outputs the result of the new number.*

*\**

*\*/*

**public class** BuildNumber {

**public static void** main(String[] args) {

*//Import scanner*

Scanner sc = **new** Scanner(System.***in***);

*//Declare variables*

String number1;

String number2;

*//Ask user for two numbers*

System.***out***.println(**"Please enter a number:"**);

number1 = sc.nextLine();

System.***out***.println(**"Please enter another number:"**);

number2 = sc.nextLine();

*//Print new "built" number*

System.***out***.println(**"Your new number is: "** + number1 + number2);

}

}