package programmingassignmentarrays;

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import java.util.Scanner; // Imports Scanner needed for user input

public class ProgrammingAssignmentArrays {

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\* @param args the command line arguments

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public static void main(String[] args) {

// TODO code application logic here

Scanner input = new Scanner (System.in); // Opens Scanner needed for user input

int k, shiftValue, wordLength; //Declares the integer variables needed for the program

char [] position; //Declares the character array needed for the program

String word; //Declares the string variables needed for the program

System.out.print("Value for parameter K: "); //Prompts user for the parameter of K

k = input.nextInt(); //Allows user to input a value for parameter of K

System.out.print("Enter word to decode(Uppercase): "); //Prompts user for the word to decode

word = input.next(); //Allows user to enter a word to decode

position = word.toCharArray(); //Initialize position to each letter's position in the word

wordLength = word.length(); //Initializes word to the length of the word

System.out.print("Decoded message: "); //Outputs Decoded message so the user knows what the output is

for (int i = 0; i < wordLength; i++) { //For the i being less the the wordLength, increment i by 1

shiftValue = 3 \* (i + 1) + k; //Initializes shiftValue to it's formula: S = 3P + K where P is the value of i + 1 becuase first poisition is 1

int unicodeValue = (int) position[i] - shiftValue; //Casts the character variable position to its integer unicode value and subtracts the shiftValue

if (unicodeValue < 65) { //If the unicode value is less than 65 (meaning it goes below A)

unicodeValue += 26; //Add 26 to the unicode value (this makes it start at Z again and the remaining shiftValue will already be subtracted)

}

char unicodeToLetter = (char) unicodeValue; //Casts unicodeValue back to a character value

System.out.print(unicodeToLetter); //Prints the decoded letter until the for loop is complete

}

}

}