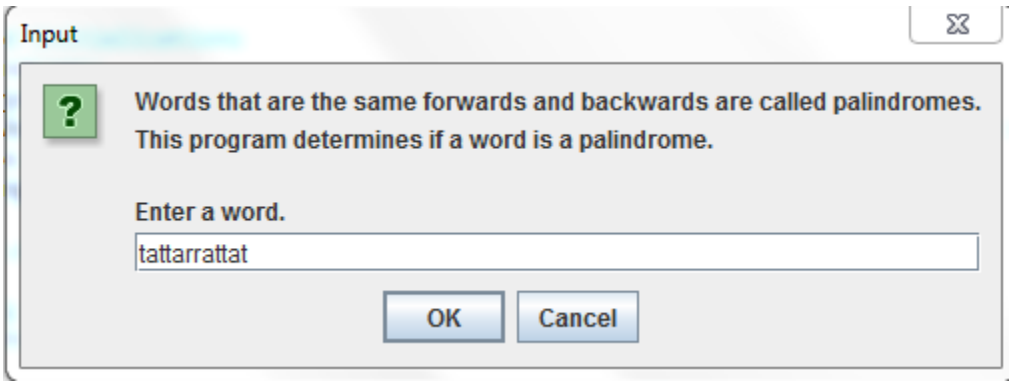
```java
/*
 * Justin Mendes
 * Created: September 14, 2017
 * Last Edited: September 14, 2017
 * Unit 1 Activity 2 Program/Question 1
 * This program will show the unicode values of letters a-z uppercase and lowercase
 */
public class UnicodeChars
{
	public static void main(String[] args)
	{
		//Variable Declarations and Initializations
		char alphabet[][] = {
				{'A', 'a'}, {'B', 'b'}, {'C', 'c'}, {'D', 'd'}, {'E',
'e'}, {'F', 'f'}, {'G', 'g'}, {'H', 'h'}, {'I', 'i'}, {'J', 'j'}, {'K', 'k'},
				{'L', 'l'}, {'M', 'm'}, {'N', 'n'}, {'O', 'o'}, {'P',
'p'}, {'Q', 'q'}, {'R', 'r'}, {'S', 's'}, {'T', 't'}, {'U', 'u'}, {'V', 'v'},
				{'W', 'w'}, {'X', 'x'}, {'Y', 'y'}, {'Z', 'z'}};
		System.out.println("Unicodes of the
Alphabet\n============================");
		for(int letter = 0; letter < 26; letter++)
		{
			for(int cases = 0; cases < 2 ; cases++)
			{
				System.out.print(alphabet[letter][cases] + " = \\u" +
Integer.toHexString(alphabet[letter][cases] | 0x10000).substring(1) + ", ");
				//The toHextString(int i) method simply returns the
hexadecimal (or base 16) string equivalent of int method parameter.
			}//end loop
			System.out.println();
		}//end loop
	}//end main
}//end class
```

```
Unicodes of the Alphabet
============================
A = \u0041, a = \u0061,
B = \u0042, b = \u0062,
C = \u0043, c = \u0063,
D = \u0044, d = \u0064,
E = \u0045, e = \u0065,
F = \u0046, f = \u0066,
G = \u0047, g = \u0067,
H = \u0048, h = \u0068,
I = \u0049, i = \u0069,
J = \u004a, j = \u006a,
K = \u004b, k = \u006b,
L = \u004c, l = \u006c,
M = \u004d, m = \u006d,
N = \u004e, n = \u006e,
O = \u004f, o = \u006f,
P = \u0050, p = \u0070,
Q = \u0051, q = \u0071,
R = \u0052, r = \u0072,
S = \u0053, s = \u0073,
T = \u0054, t = \u0074,
U = \u0055, u = \u0075,
V = \u0056, v = \u0076,
W = \u0057, w = \u0077,
X = \u0058, x = \u0078,
Y = \u0059, y = \u0079,
Z = \u005a, z = \u007a,
```

```java
/*
 * Justin Mendes
 * Created: November 26, 2016
 * Last Edited: September 17, 2017
 * Unit 1 Activity 2 Program/Question 3
 * This program will print the user's inputed word backward and declare if the word
is a palindrome (spelt the same backwards as forward)
 */
import javax.swing.JOptionPane;
import java.util.Scanner;
public class Palindrome
{
	public static void main(String[] args)
	{
		int restart = 1;
		while(restart == 1)
		{
			//Variable Declarations and Initializations
			String backward = "", palindrome;
			Scanner sc = new Scanner(System.in);
			palindrome = JOptionPane.showInputDialog(null,"Words that are the
same forwards and backwards are called palindromes.\nThis program determines if a
word is a palindrome.\n\nEnter a word.", "Input", JOptionPane.QUESTION_MESSAGE);
			System.out.print(palindrome.toLowerCase() + " backwards is ");
			for (int i = palindrome.length() - 1; i >= 0; i--)
			{
				backward += palindrome.charAt(i);
			}//end for
			System.out.print(backward);
			if (palindromeCheck(palindrome) == true)
			{
				System.out.println("\nTherefore, " + palindrome + " IS a
palindrome!");
			}//end if
			else
			{
				System.out.println("\nClearly, " + palindrome + " is NOT a
palindrome.");
			}
			System.out.println("\nPress 1 to try another word!");
			restart = sc.nextInt();
		}//end while
	}//end main
	public static boolean palindromeCheck(String word)
	{
		String backward = "";
		for (int i = word.length() - 1; i >= 0; i--)//loop to have the word
backwards
		{
			backward += word.charAt(i);
		}//end for
		if(backward.toLowerCase().equals(word.toLowerCase()))//the word is
palindrome if it is the same backwards
		{
			return true;
```

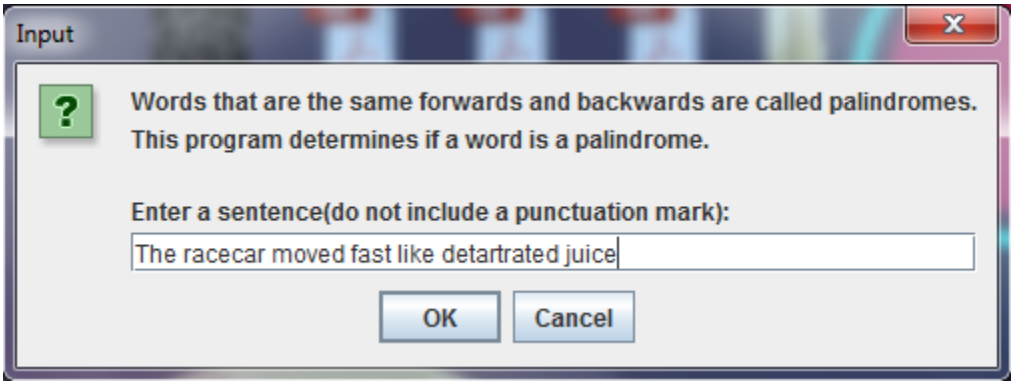
```
			}//end if
			else
			{
				return false;
			}//end else
		}//end method palindromeCheck
}//end class
```




```
Palindrome (1) [Java Application] C:\Program Files\Ja
tattarrattat backwards is tattarrattat
Therefore, tattarrattat IS a palindrome!

Press 1 to try another word!
1
```

```
/*
 * Justin Mendes
 * Created: September 17, 2017
 * Last Edited: September 17, 2017
 * Unit 1 Activity 2 Program/Question 4
 * This program can print the user's inputed sentence words backward and declare if
the word is a palindrome (spelt the same backwards as forward)
 */
import javax.swing.JOptionPane;
import java.util.Scanner;
public class Palindrome2
{
	public static int palindromeCount;
	public static void main(String[] args)
	{
		int restart = 1;
		while(restart == 1)
		{
			//Variable Declarations and Initializations
			String sentence, palindromeWords[], palindromes = "";
			Scanner sc = new Scanner(System.in);
			sentence = JOptionPane.showInputDialog(null,"Words that are the
same forwards and backwards are called palindromes.\nThis program determines if a
word is a palindrome.\n\nEnter a sentence(do not include a punctuation mark):",
"Input", JOptionPane.QUESTION_MESSAGE);
```

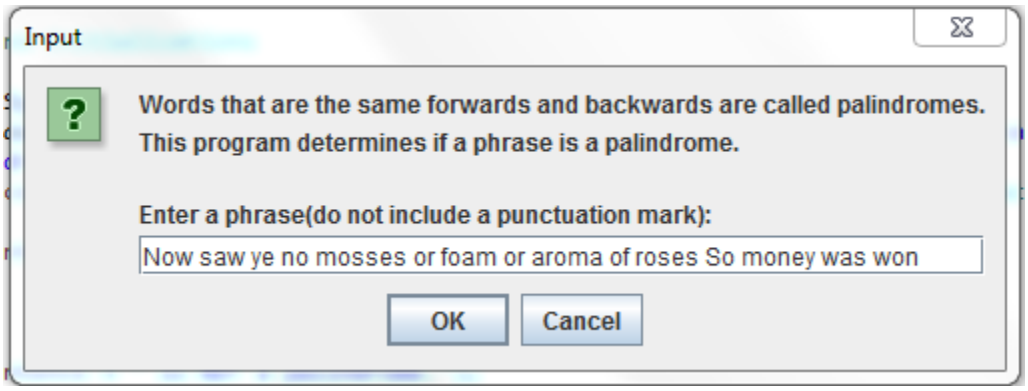
```
                    palindromeWords = sentence.split(" ");// to split up the sentence
by every space into the array
                    palindromeCount = 0;//to reset the palindrome count
                    //loop a palindrome check for each word
                    for (int i = 0; i < palindromeWords.length; i++)
                    {
                           palindromes += palindromeCheck(palindromeWords[i]) + " ";
                    }//end loop
                    System.out.println("Palindrome 2:
Sentences\n==========================");
                    System.out.println("In the following sentence:\n" + sentence);
                    System.out.println("There are " + palindromeCount + " palindromes
which are:\n" + palindromes.replaceAll("\\s+"," ")/*this is to get rid of the excess
spaces made from the code above*/);
                    System.out.println("\nPress 1 to try another sentence!");
                    restart = sc.nextInt();
             }//end while
      }//end main
      public static String palindromeCheck(String word)
      {
             String backward = "";
             for (int i = word.length() - 1; i >= 0; i--)//loop to have the word
backwards
             {
                    backward += word.charAt(i);
             }//end for
             if(backward.toLowerCase().equals(word.toLowerCase()))//the word is
palindrome if it is the same backwards
             {
                    palindromeCount++;
                    return word;
             }//end if
             else
             {
                    return "";
             }//end else
      }//end method palindromeCheck
}//end class
```



```
Palindrome2 [Java Application] C:\Program Files\Java\jre1.8.0
Palindrome 2: Sentences
==========================
In the following sentence:
The racecar moved fast like detartrated juice
There are 2 palindromes which are:
 racecar detartrated

Press 1 to try another sentence!
1
```

```
/*
 * Justin Mendes
 * Created: September 17, 2017
 * Last Edited: September 17, 2017
 * Unit 1 Activity 2 Program/Question 5
 * This program will print the user's inputed phrase backwards and declare if the
phrase is a palindrome (spelt the same backwards as forward)
 */
import javax.swing.JOptionPane;
import java.util.Scanner;
public class Palindrome3
{
	public static void main(String[] args)
	{
		int restart = 1;
		while(restart == 1)
		{
			//Variable Declarations and Initializations
			String sentence;
			Scanner sc = new Scanner(System.in);
			sentence = JOptionPane.showInputDialog(null,"Words that are the
same forwards and backwards are called palindromes.\nThis program determines if a
phrase is a palindrome.\n\nEnter a phrase(do not include a punctuation mark):",
"Input", JOptionPane.QUESTION_MESSAGE);
			System.out.println("Palindrome 3: Whole
Phrases\n================================");
			if(palindromeCheck(sentence.replaceAll("\\s+", "")) ==
true)//give the user input without the spaces to check if the letters together make a
palindrome
			{
				System.out.println(sentence + " IS a palindrome!");
			}//end if
			else
			{
				System.out.println(sentence + " is NOT a palindrome.");
			}//end else
			System.out.println("\nPress 1 to try another phrase!");
			restart = sc.nextInt();
		}//end while
	}//end main
	public static boolean palindromeCheck(String word)
	{
```

```
            String backward = "";
            for (int i = word.length() - 1; i >= 0; i--)//loop to have the word
backwards
            {
                  backward += word.charAt(i);
            }//end for
            if(backward.toLowerCase().equals(word.toLowerCase()))//the word is
palindrome if it is the same backwards
            {
                  return true;
            }//end if
            else
            {
                  return false;
            }//end else
      }//end method palindromeCheck
}//end class
```

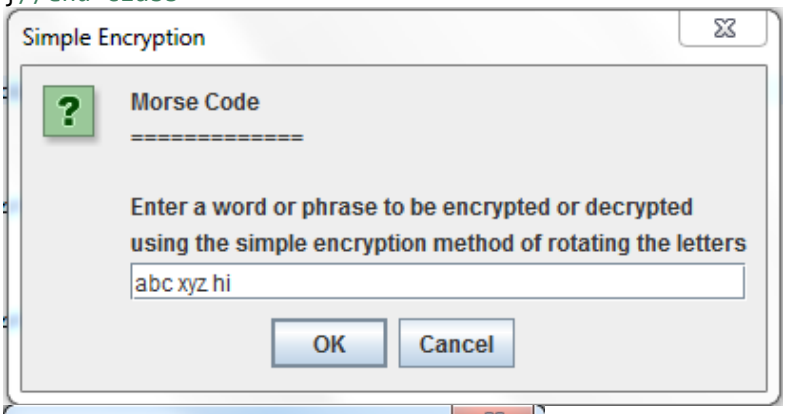


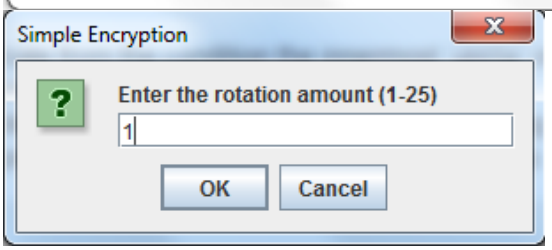

```
Palindrome3 [Java Application] C:\Program Files\Java\jre1.8.0_144\bin\javaw.exe (Sep 18, 2017, 12:18:42 AM
Palindrome 3: Whole Phrases
================================
Now saw ye no mosses or foam or aroma of roses So money was won IS a palindrome!

Press 1 to try another phrase!
1
```

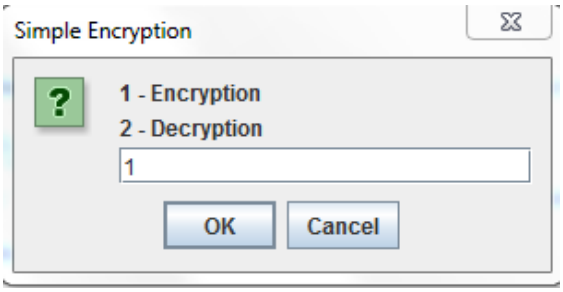
```
import javax.swing.JOptionPane;
/*
 * Justin Mendes
 * Created: July 30, 2017
 * Last Edited: September 16, 2017
 * Unit 1 Activity 1 Program/Question 6
 * This program will encrypt a word or phrase based on the inputs
 */
public class SimpleEncryption
{
      public static void main(String[] args)
      {
            //Variable Declarations and Initializations
            String userCode;
```

```
		int method = 0, rotation = 0;
		userCode = JOptionPane.showInputDialog(null,"Morse
Code\n============\n\nEnter a word or phrase to be encrypted or decrypted"
				+ "\nusing the simple encryption method of rotating the
letters", "Simple Encryption", JOptionPane.QUESTION_MESSAGE);
		while (rotation < 1 || rotation > 25)
		{
			rotation =
Integer.parseInt(JOptionPane.showInputDialog(null,"Enter the rotation amount (1-25)",
"Simple Encryption", JOptionPane.QUESTION_MESSAGE));
		}//end loop
		while (method < 1 || method > 2)
		{
			method = Integer.parseInt(JOptionPane.showInputDialog(null,"1 -
Encryption\n2 - Decryption", "Simple Encryption", JOptionPane.QUESTION_MESSAGE));
		}//end loop
		System.out.println("Encryption\n==========");
		System.out.println("The original phrase is: " + userCode);
		System.out.println("The encrypted phrase is: " + letterSwitch(userCode,
rotation, method));
	}//end main
	public static String letterSwitch(String userCode, int rotations, int method)
	{
		char alphabet[] = {'A','B','C','D','E','F','G','H','I','J','K',

	'L','M','N','O','P','Q','R','S','T','U','V','W','X','Y','Z'};
		String alteredCode = "";
		//to go through each character in the string
		for(int letterIdx = 0; letterIdx < userCode.length(); letterIdx++)
		{
			//to match up where the letter is in the array
			for(int i = 0; i < 26; i++)
			{
				if(userCode.charAt(letterIdx) == ' ')//to ensure spaces
work in phrases
				{
					alteredCode += " ";
					break;
				}//end if
				if(alphabet[i] ==
userCode.toUpperCase().charAt(letterIdx))
				{
					if(method == 1)
					{
						alteredCode += encrypt(alphabet, i,
rotations);
					}//end if
					else
					{
						alteredCode += decrypt(alphabet, i,
rotations);
					}//end else
				}//end if
			}//end loop
		}//end loop
```

```
            return alteredCode;
        }//end method encryptDecrypt
        public static char encrypt(char[] alphabet, int currentLetter, int rotations)
        {
            if(currentLetter + rotations >= 26)
            {
                return alphabet[currentLetter + rotations - 26];
            }//end if
            else
            {
                return alphabet[currentLetter + rotations];
            }//end else
        }//end method encrypt
        public static char decrypt(char[] alphabet, int currentLetter, int rotations)
        {
            if(currentLetter - rotations < 0)
            {
                return alphabet[currentLetter - rotations + 26];
            }//end if
            else
            {
                return alphabet[currentLetter - rotations];
            }//end else
        }//end method decrypt
}//end class
```



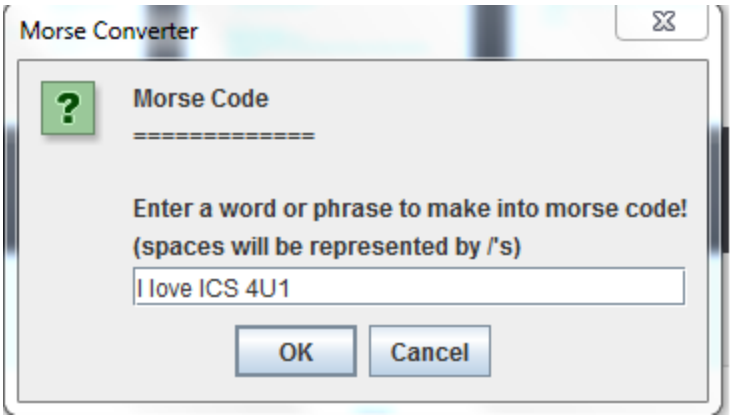




```
Encryption
==========
The original phrase is: abc xyz hi
The encrypted phrase is: BCD YZA IJ
```

```java
import javax.swing.JOptionPane;
/*
 * Justin Mendes
 * Created: July 30, 2017
 * Last Edited: September 17, 2017
 * Unit 1 Activity 1 Program/Question 7
 * This program will return an inputted word in morse code
 */
public class MorseCode {

	public static void main(String[] args)
	{
		String input, code = "", upperInput;
		input = JOptionPane.showInputDialog(null,"Morse
Code\n=============\n\nEnter a word or phrase to make into morse code!"
				+ "\n(spaces will be represented by /'s)", "Morse
Converter", JOptionPane.QUESTION_MESSAGE);
		upperInput = input.toUpperCase();
		for(int i = 0; i < input.length(); i++)
		{
			switch(upperInput.charAt(i))
			{
			case 'A': code += ".- ";
			break;
			case 'B': code += "-... ";
			break;
			case 'C': code += "-.-. ";
			break;
			case 'D': code += "-.. ";
			break;
			case 'E': code += ". ";
			break;
			case 'F': code += "..-. ";
			break;
			case 'G': code += "--. ";
			break;
			case 'H': code += ".... ";
			break;
			case 'I': code += ".. ";
			break;
			case 'J': code += ".--- ";
			break;
			case 'K': code += "-.- ";
			break;
			case 'L': code += ".-.. ";
			break;
			case 'M': code += "-- ";
			break;
			case 'N': code += "-. ";
```

```
                    break;
                    case 'O': code += "--- ";
                    break;
                    case 'P': code += ".--. ";
                    break;
                    case 'Q': code += "--.- ";
                    break;
                    case 'R': code += ".-. ";
                    break;
                    case 'S': code += "... ";
                    break;
                    case 'T': code += "- ";
                    break;
                    case 'U': code += "..- ";
                    break;
                    case 'V': code += "...- ";
                    break;
                    case 'W': code += ".-- ";
                    break;
                    case 'X': code += "-..- ";
                    break;
                    case 'Y': code += "-.-- ";
                    break;
                    case 'Z': code += "--.. ";
                    break;
                    case '1': code += ".---- ";
                    break;
                    case '2': code += "..--- ";
                    break;
                    case '3': code += "...-- ";
                    break;
                    case '4': code += "....- ";
                    break;
                    case '5': code += "..... ";
                    break;
                    case '6': code += "-.... ";
                    break;
                    case '7': code += "--... ";
                    break;
                    case '8': code += "---.. ";
                    break;
                    case '9': code += "----. ";
                    break;
                    case '0': code += "----- ";
                    break;
                    case ' ': code += " / ";
                    break;
                    }//end switch
                }//end loop
                System.out.println("Morse Code\n===============");
                System.out.println("The word/phrase \"" + input + "\" in morse code
is:");
                System.out.println(code);
        }//end main
}//end class
```




```
<terminated> MorseCode [Java Application] C:\Program Files\Java\j
Morse Code
==============
The word/phrase "I love ICS 4U" in morse code is:
..  / .-.. --- ...- .  / .. -.-. ...  / ....- ..-
```