

START WRITING FROM HERE

7. Exercises on string and char operations

7.1 Reverse String (string & char)

```
import java.util.Scanner;

public class ReverseString {
    public static void main (String args[]) {
        Scanner scan = new Scanner (System.in);
        System.out.print ("Enter a String: ");
        String input = scan.next();
        scan.close();

        int stringLen = input.length();
        String reverse = " ";

        for (int charId = stringLen - 1; charId >= 0; charId--) {
            reverse += input.charAt(charId);
        }

        System.out.println ("The reverse of the string \"" + input +
            "\" is \"" + reverse + "\"");
    }
}
```

Output:

Enter a String: abcdef

The reverse of the string "abcdef" is "fedcba"

7-2 CountVowelsDigits (String & char)

```
import java.util.Scanner;
```

```
public class CountVowelsDigits {
```

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

```
        Scanner scan = new Scanner(System.in);
```

```
        System.out.print("Enter a string: ");
```

```
        String input = scan.next();
```

```
        int stringLen = input.length();
```

```
        int vowelCount = 0, digitCount = 0, count = 0;
```

```
        for (int charId = 0; charId < stringLen; charId++) {
```

```
            count++;
```

```
            char character = input.charAt(charId);
```

```
            if (character == 'a' || character == 'e' || character == 'i'
```

```
                || character == 'o' || character == 'u') {
```

```
                vowelCount++;
```

```
            } else if (character == '0' || character == '1' ||
```

```
                character == '2' || character == '3' || character == '4' ||
```

```
                character == '5' || character == '6' || character == '7' ||
```

```
                character == '8' || character == '9') {
```

```
                digitCount++;
```

```
            }
```

```
        }
```

```
        System.out.print("Number of vowels: " + vowelCount);
```

```
        System.out.printf(" (%.2f%%)", (double) (vowelCount * 100) / count);
```

```
        System.out.println();
```

```
        System.out.print("Number of digits: " + digitCount);
```

```
        System.out.printf(" (%.2f%%)", (double) (digitCount * 100) / count);
```

```
    }
```

```
}
```

output :

Enter a String : testing12345

Number of vowels : 2 (16.67%)

Number of digits : 5 (41.67%)

7-3 PhoneKeyPad (String & char)

import java.util.Scanner;

public class PhoneKeyPad {

public static void main (String args[]) {

Scanner scan = new Scanner(System.in);

System.out.print ("Enter a string: ");

String input = scan.next().toLowerCase();

int stringLen = input.length();

for (int charId = 0; charId < stringLen; charId++) {

char character = input.charAt(charId);

switch (character) {

case 'a': case 'b': case 'c':

System.out.print (2); break;

case 'd': case 'e': case 'f':

System.out.print (3); break;

case 'g': case 'h': case 'i':

System.out.print (4); break;

case 'j': case 'k': case 'l':

System.out.print (5); break;

case 'm': case 'n': case 'o':

System.out.print (6); break;

case 'p': case 'q': case 'r': case 's':

System.out.print (7); break;

Output :

2576

```
import java.util.Scanner;
```

5/16

```

else if (character == 'Y') {
    System.out.print ('B');
} else if (character == 'Z') {
    System.out.print ('C');
} else {
    System.out.print ((char) (character + 3));
}
}
}
}

```

output.

Enter a plaintext string : Testing
 The ciphertext string is : WHVWLQJ

7.5 Decipher Caesar's code (string & char)

```

import java.util.Scanner;

public class DecipherCaesarCode {
    public static void main (String args[]) {
        Scanner scan = new Scanner (System.in);
        System.out.print ("Enter a ciphertext string : ");
        String input = scan.next(), toUpperCase();
        scan.close();

        int stringLen = input.length();
    }
}

```



```

} (++) for (int charId = 0; charId < stringLen; charId++) {
    char character = input.charAt(charId);
    if (character == 'A') {
        System.out.print('X');
    }
    else if (character == 'B') {
        System.out.print('Y');
    }
    else if (character == 'C') {
        System.out.print('Z');
    }
    else {
        System.out.print((char) (character - 3));
    }
}
}
}

```

output:

Enter a cipher text string: WHVWLQJ

The plaintext string is: TESTING

7.6 Exchange Cipher (String & char)

```

import java.util.Scanner;

public class ExchangeCipher {
    public static void main (String args[]) {
        Scanner scan = new Scanner (System.in);
        System.out.print ("Enter a plaintext string: ");
        String input = scan.next().toUpperCase();
        scan.close();

        int stringLen = input.length();
    }
}

```

```

for (int charId = 0; charId < stringLen; charId++) {
    int character = input.charAt(charId);
    System.out.print((char) (iss - character));
}
}

```

output:

Enter a plaintext string: abcXYZ

The cipher text string is: ZYX (BA

7.7 Test Palindromic Word and Test Palindromic Phrase

1. Test Palindromic Word (string & char)

```
import java.util.Scanner;
```

```
public class TestPalindromicWord {
```

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

```
        Scanner scan = new Scanner (System.in);
```

```
        System.out.print ("Enter a String: ");
```

```
        String input = scan.next();
```

```
        scan.close();
```

```
        int stringLen = input.length(), fIndex = 0, bIndex = stringLen - 1;
```

```
        boolean check = true;
```

```
        while (fIndex < bIndex) {
```

```
            if (input.charAt(fIndex) == input.charAt(bIndex)) {
```

```
                check = true;
```

```
            } else {
```

```
                check = false;
```

```
                break;
```

```
            }
        }
    }
}

```

```

        +Index++;
        bIndex--;
    }

    if (check) {
        System.out.println(input + " is a palindromic word");
    } else {
        System.out.println(input + " is not a palindromic word");
    }
}
}

```

output:

Enter a string : Racecar

Racecar is a palindromic word

2. Test Palindromic Phrase (String & char)

```

import java.util.Scanner;

public class TestPalindromicPhrase {

    public static void main(String args[]) {
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter a phrase: ");
        String intake = scan.nextLine();
        scan.close();

        String input = intake.toUpperCase();
        String filteredInput = "";
        int ogStringLen = input.length();

        for (int charId = 0; charId < ogStringLen; charId++) {
            char character = input.charAt(charId);
            if (character >= 'A' && character <= 'Z') {
                filteredInput += character;
            }
        }
    }
}

```



```

int stringlen = filteredInput.length(), fIndex = 0, bIndex =
stringlen - 1; boolean check = true;

while (fIndex < bIndex) {
    if (filteredInput.charAt(fIndex) == filteredInput.charAt(bIndex))
        check = true;
    else {
        check = false;
        break;
    }
    fIndex++;
    bIndex--;
}

if (check) {
    System.out.println("\"" + intake + "\"" + " is a
    palindromic phrase");
} else {
    System.out.println("\"" + intake + "\"" + " is not a
    palindromic phrase");
}
}
}

```

Output:

Enter a phrase : Madam, I'm Adam!

"Madam, I'm Adam!" is a palindromic phrase

7.8 checkBinStr (String & char)

```
import java.util.Scanner;
```

```
public class CheckBinStr {
```

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

```
        Scanner scan = new Scanner(System.in);
```

```
        System.out.print("Enter a binary string: ");
```

```
        String input = scan.next();
```

```
        scan.close();
```

```
        int stringLen = input.length();
```

```
        boolean check = true;
```

```
        for (int charId = 0; charId < stringLen; charId++) {
```

```
            char character = input.charAt(charId);
```

```
            if (character != '0' && character != '1') {
```

```
                check = false;
```

```
                break;
```

```
            } else {
```

```
                check = true;
```

```
        System.out.println(check ? (input + " is a binary string") :
```

```
            (input + " is not a binary string"));
```

```
    }
```

```
}
```

output :

Enter a binary string : 10112001

10112001 is not a binary string

7.9 check HexStr (String, char)

```

import java.util.Scanner;

public class CheckHexStr {
    public static void main (String args []) {
        Scanner scan = new Scanner (System.in);
        System.out.print ("Enter a hex string: ");
        String input = scan.next();
        int stringlen = input.length();
        boolean check = true;
        for (int charId = 0; charId < stringlen; charId++) {
            char character = input.charAt (charId);
            if ((!(character >= '0' & character <= '9') ||
                (character >= 'A' & character <= 'F') ||
                (character >= 'a' & character <= 'f')))) {
                check = false;
                break;
            }
        }
        System.out.println (check ? (input + " is a hex string") :
            (input + " is not a hex string"));
    }
}

```

output :

Enter a hex string: 123aBc

"123aBc" is a hex string

7.10 Bin2Dec (String & char)

```

import java.util.Scanner;

public class Bin2Dec {
    public static void main (String args []) {
        Scanner scan = new Scanner (System.in);
        System.out.print ("Enter a Binary string: ");
        String input = scan.next();

        int decimal = Integer.parseInt (input, 2);
        System.out.println ("The equivalent decimal number for
        binary \" + input + \" is: \" + decimal);
    }
}

```

output:

Enter a Binary string: 1011

The equivalent decimal number for "1011" is: 11

7.11 Hex2Dec (String & char)

```

import java.util.Scanner;

public class Hex2Dec {
    public static void main (String args []) {
        Scanner scan = new Scanner (System.in);
        System.out.print ("Enter a hexadecimal string: ");
        String input = scan.next();

        int decimal = Integer.parseInt (input, 16);

        System.out.println ("The equivalent decimal number for
        hexa decimal \" + input + \" is: \" + decimal);
    }
}

```

output:

Enter a hexadecimal string: 1a

The equivalent decimal number for hexadecimal "1a" is: 26

7.12 Oct2Dec (string & char)

import java.util.Scanner;

public class Oct2Dec {

public static void main(String args[]) {

Scanner scan = new Scanner(System.in);

System.out.print("Enter an Octal string: ");

String input = scan.next();

scan.close();

int decimal = Integer.parseInt(input, 8);

System.out.println("The equivalent decimal number for
octal \" " + input + "\" is : " + decimal);

}

}

output:

Enter an Octal string: 147

The equivalent decimal number for "147" is: 103