**//Assignment 1**

**//1.**

**package** psr;

**import** java.util.\*;

**public** **class** homework {

**public** **static** String removeDuplicates(String s) {

Stack <Character> st= **new** Stack<>();

StringBuilder result = **new** StringBuilder();

**for**(**char** ch:s.toCharArray()) {

**if**(!st.isEmpty() && st.peek()== ch )

st.pop();

**else**

st.push(ch);

}

**for**(**char** c : st) {

result.append(c);

}

**return** result.toString();

}

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

String s="abbaca";

String result = *removeDuplicates*(s);

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

}

}

//2.

**package** psr;

**public** **class** homework {

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

**int** [] arr = {100,80,60,70,60,75,85};

**int** res[] = *stopSpanStock*(arr);

**for**(**int** i : res){

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

}

}

**static** **int**[] stopSpanStock(**int** [] arr){

**int** [] res = **new** **int**[arr.length];

**int** n = arr.length - 1 ;

res[0] = 1;

**for**(**int** i = n ; i > 0 ; i--){

**for**(**int** j = i - 1 ; j >= 0 ; j--){

**if**(arr[i] < arr[j]){

res[i] = i - j;

**break**;

}

}

}

**return** res;

}

}

//3.

**package** psr;

**import** java.util.\*;

**public** **class** homework {

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

String s = "((()))";

**boolean** check = *checkParanthese*(s);

**if**(check) System.***out***.println("Balanced : ");

**else** System.***out***.println("Not Balanced : ");

}

**static** **boolean** checkParanthese(String s){

Stack<Character> st = **new** Stack<>();

**for**(**char** c : s.toCharArray()){

**if**(c == '(') {

st.push(c);

}

**else** **if** (c == '{') {

st.push(c);

} **else** **if** (c == '[') {

st.push(c);

}

**else** **if** (c == ')') {

**if**(!st.isEmpty() && st.peek().equals('(')){

st.pop();

}

}

**else** **if** (c == '}') {

**if**(!st.isEmpty() && st.peek().equals('{')){

st.pop();

}

}

**else** **if** (c == ']') {

**if**(!st.isEmpty() && st.peek().equals('[')){

st.pop();

}

}

}

**if**(st.isEmpty()) **return** **true**;

**return** **false**;

}

}