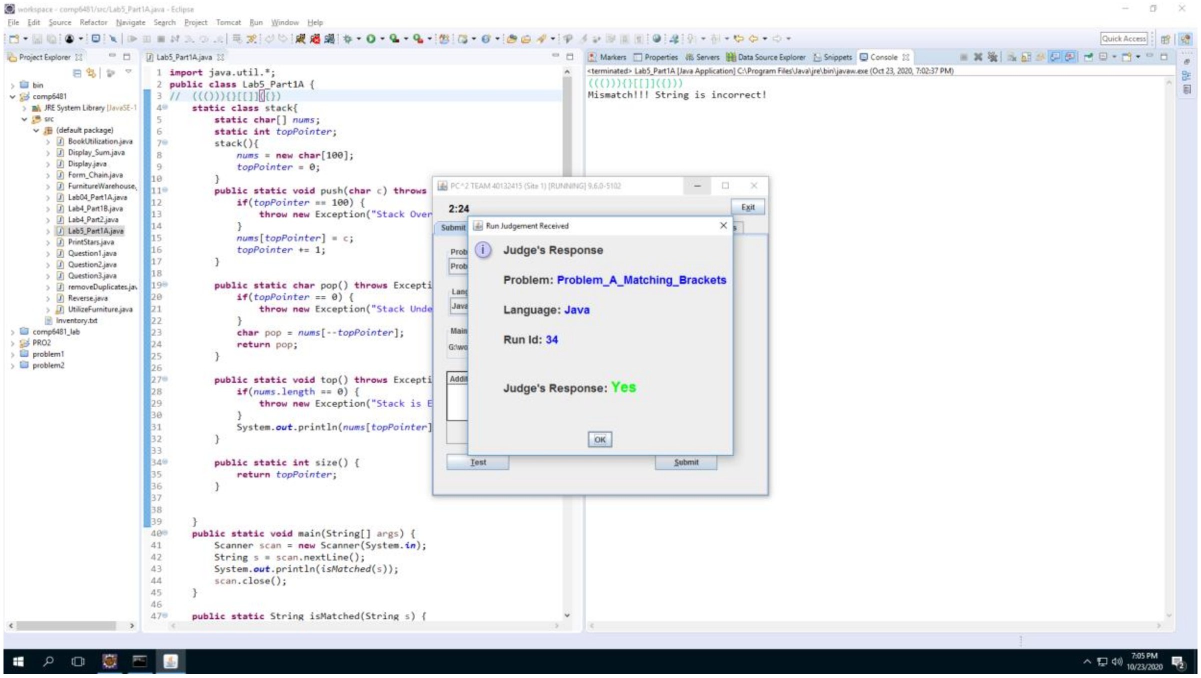
Part 1A

```
import java.util.*;
public class Lab5_Part1A {
//	((())){}[[]]({})
	static class stack{
		static char[] nums;
		static int topPointer;
		stack(){
			nums = new char[100];
			topPointer = 0;
		}
		public static void push(char c) throws Exception {
			if(topPointer == 100) {
				throw new Exception("Stack Overflowed");
			}
			nums[topPointer] = c;
			topPointer += 1;
		}

		public static char pop() throws Exception {
			if(topPointer == 0) {
				throw new Exception("Stack Underflowed");
			}
			char pop = nums[--topPointer];
			return pop;
		}

		public static void top() throws Exception {
			if(nums.length == 0) {
				throw new Exception("Stack is Empty");
			}
			System.out.println(nums[topPointer]);
		}

		public static int size() {
			return topPointer;
		}


	}
	public static void main(String[] args) {
		Scanner scan = new Scanner(System.in);
		String s = scan.nextLine();
```

```
        System.out.println(isMatched(s));
        scan.close();
    }

    public static String isMatched(String s) {
        @SuppressWarnings("unused")
        stack obj = new stack();
        Map<Character, Character> map = new HashMap<>();
        map.put(')', '(');
        map.put(']', '[');
        map.put('}', '{');
        for(int i = 0; i < s.length(); i++) {
            char c = s.charAt(i);
            if(c == '(' || c == '{' || c == '[') {
                try {
                    stack.push(c);
                } catch (Exception e) {
                    e.printStackTrace();
                }
                continue;
            }
            if(stack.size() < 1) {
                return ("Mismatch!!! String is incorrect!");

            }
            else {
                try {
                    char popped = stack.pop();
                    if(popped != map.get(c)) {
                        System.out.println(popped + ":" + c);
                        return ("Mismatch!!! String is
incorrect!");
                    }
                } catch (Exception e) {
                    e.printStackTrace();
                }
            }
        }
        return (stack.size() == 0) ? "Good: string is correct;
everything matches correctly!" : ("Mismatch!!! String is incorrect!");
    }
}
```


workspace - comp6481/src/Lab5_Part1A.java - Eclipse
File Edit Source Refactor Navigate Search Project Tomcat Run Window Help
Project Explorer
Lab5_Part1A.java
Markers Properties Servers Data Source Explorer Snippets Console
PC^2 TEAM 40132415 (Site 1) [RUNNING] 9.6.0-5102
Exit
Submit
Test
Submit
OK

```
import java.util.*;
public class Lab5_Part1A {
//  ((()))(){[[]]({})
    static class stack{
        static char[] nums;
        static int topPointer;
        stack(){
            nums = new char[100];
            topPointer = 0;
        }
        public static void push(char c) throws
            if(topPointer == 100) {
                throw new Exception("Stack Over
            }
            nums[topPointer] = c;
            topPointer += 1;
        }

        public static char pop() throws Excepti
            if(topPointer == 0) {
                throw new Exception("Stack Unde
            }
            char pop = nums[--topPointer];
            return pop;
        }

        public static void top() throws Excepti
            if(nums.length == 0) {
                throw new Exception("Stack is E
            }
            System.out.println(nums[topPointer]
        }

        public static int size() {
            return topPointer;
        }


    }
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        String s = scan.nextLine();
        System.out.println(isMatched(s));
        scan.close();
    }

    public static String isMatched(String s) {
```

```
<terminated> Lab5_Part1A [Java Application] C:\Program Files\Java\jre\bin\javaw.exe (Oct 23, 2020, 7:02:37 PM)
((()))(){[[]]({}))
Mismatch!!! String is incorrect!
```

2:24

Run Judgement Received

Judge's Response

Problem: Problem_A_Matching_Brackets

Language: Java

Run Id: 34

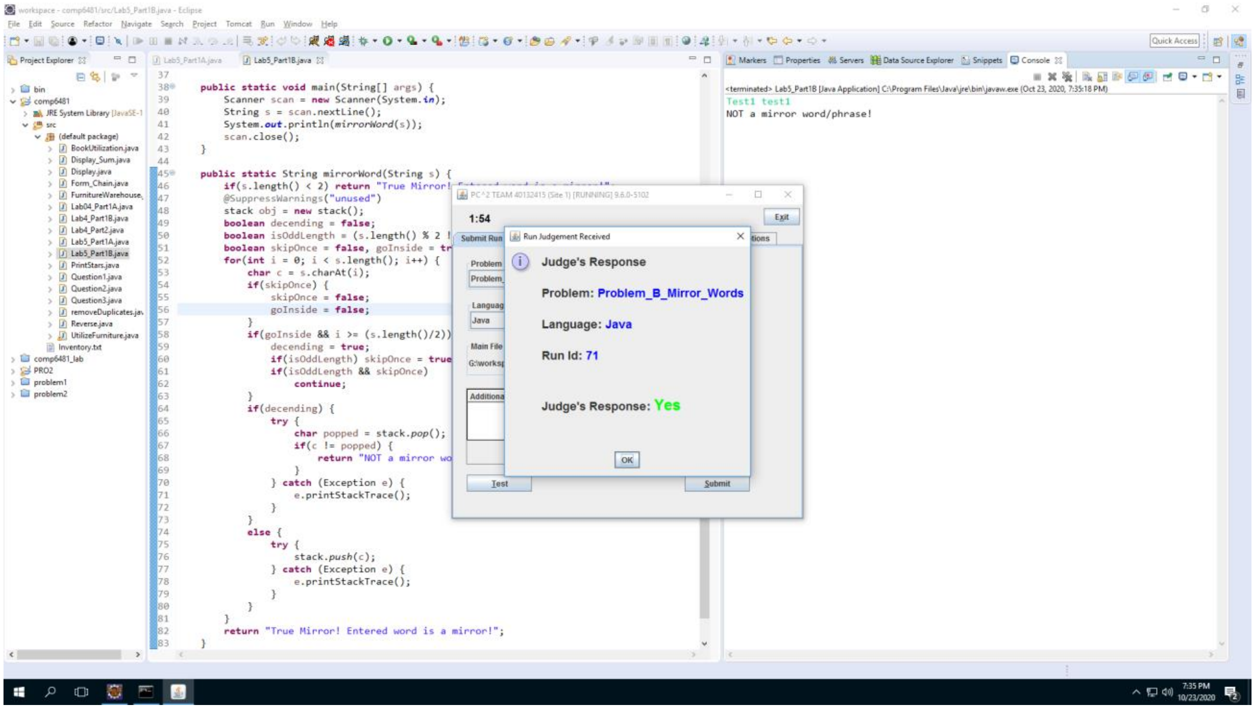
Judge's Response: Yes

7:05 PM
10/23/2020

Part 1B

```
import java.util.*;
public class Lab5_Part1B {
	static class stack{
		static char[] nums;
		static int topPointer;
		stack(){
			nums = new char[100000];
			topPointer = 0;
		}
		public static void push(char c) throws Exception {
			if(topPointer == 100) {
				throw new Exception("Stack Overflowed");
			}
			nums[topPointer] = c;
			topPointer += 1;
		}

		public static char pop() throws Exception {
			if(topPointer == 0) {
				throw new Exception("Stack Underflowed");
			}
			char pop = nums[--topPointer];
```

```
            return pop;
        }

        public static void top() throws Exception {
            if(nums.length == 0) {
                throw new Exception("Stack is Empty");
            }
            System.out.println(nums[topPointer]);
        }

        public static int size() {
            return topPointer;
        }
    }

    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        String s = scan.nextLine();
        System.out.println(mirrorWord(s));
        scan.close();
    }

    public static String mirrorWord(String s) {
        if(s.length() < 2) return "True Mirror! Entered word is a
mirror!";
        @SuppressWarnings("unused")
        stack obj = new stack();
        boolean decending = false;
        boolean isOddLength = (s.length() % 2 != 0);
        boolean skipOnce = false, goInside = true;
        for(int i = 0; i < s.length(); i++) {
            char c = s.charAt(i);
            if(skipOnce) {
                skipOnce = false;
                goInside = false;
            }
            if(goInside && i >= (s.length()/2)) {
                decending = true;
                if(isOddLength) skipOnce = true;
                if(isOddLength && skipOnce)
                    continue;
            }
            if(decending) {
                try {
                    char popped = stack.pop();
                    if(c != popped) {
                        return "NOT a mirror word/phrase!";
                    }
                } catch (Exception e) {
                    e.printStackTrace();
                }
            }
            else {
                try {
                    stack.push(c);
                } catch (Exception e) {
                    e.printStackTrace();
                }
            }
        }
        return "True Mirror! Entered word is a mirror!";
    }

}
```



```
    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        String s = scan.nextLine();
        System.out.println(mirrorWord(s));
        scan.close();
    }

    public static String mirrorWord(String s) {
        if(s.length() < 2) return "True Mirror!
        @SuppressWarnings("unused")
        stack obj = new stack();
        boolean decending = false;
        boolean isOddLength = (s.length() % 2 !
        boolean skipOnce = false, goInside = tr
        for(int i = 0; i < s.length(); i++) {
            char c = s.charAt(i);
            if(skipOnce) {
                skipOnce = false;
                goInside = false;
            }
            if(goInside && i >= (s.length()/2))
                decending = true;
                if(isOddLength) skipOnce = true
                if(isOddLength && skipOnce)
                    continue;
            }
            if(decending) {
                try {
                    char popped = stack.pop();
                    if(c != popped) {
                        return "NOT a mirror wo
                    }
                } catch (Exception e) {
                    e.printStackTrace();
                }
            }
            else {
                try {
                    stack.push(c);
                } catch (Exception e) {
                    e.printStackTrace();
                }
            }
        }
        return "True Mirror! Entered word is a mirror!";
    }
```

```
<terminated> Lab5_Part1B [Java Application] C:\Program Files\Java\jre\bin\javaw.exe (Oct 23, 2020, 7:35:18 PM)
Test1 test1
NOT a mirror word/phrase!
```

PC^2 TEAM 40132415 (Site 1) [RUNNING] 9.6.0-5102

1:54

Run Judgement Received

Judge's Response

Problem: Problem_B_Mirror_Words

Language: Java

Run Id: 71

Judge's Response: Yes

workspace - comp6481/src/Lab5_Part1B.java - Eclipse
File Edit Source Refactor Navigate Search Project Tomcat Run Window Help
Project Explorer
Lab5_Part1A.java
Lab5_Part1B.java
Markers Properties Servers Data Source Explorer Snippets Console
Quick Access
Submit Run
Exit
OK
Test
Submit
7:35 PM
10/23/2020

Part 2

```
import java.io.*;
import java.util.*;
```

```
public class Lab5_Part2 {

    public static void main(String[] args) throws
FileNotFoundException, IOException {
        Scanner scan = new Scanner(System.in);
        ObjectInputStream ois = new ObjectInputStream(new
FileInputStream("G:\\workspace\\comp6481\\src\\mystery.dat"));
        try {
            System.out.println(ois.readUTF());
            while(true) {
                int num = ois.readInt();
                char c1 = ois.readChar();
                char c2 = ois.readChar();
                char c3 = ois.readChar();
                String line = ois.readUTF();
                System.out.println(num + " " + c1 + c2 + c3 +
line);
            }
        }catch(Exception e) {
            System.out.println("The file has reached to the end.
Program will terminate now.");
            System.exit(0);
        }
        ois.close();
        scan.close();
    }

}
```