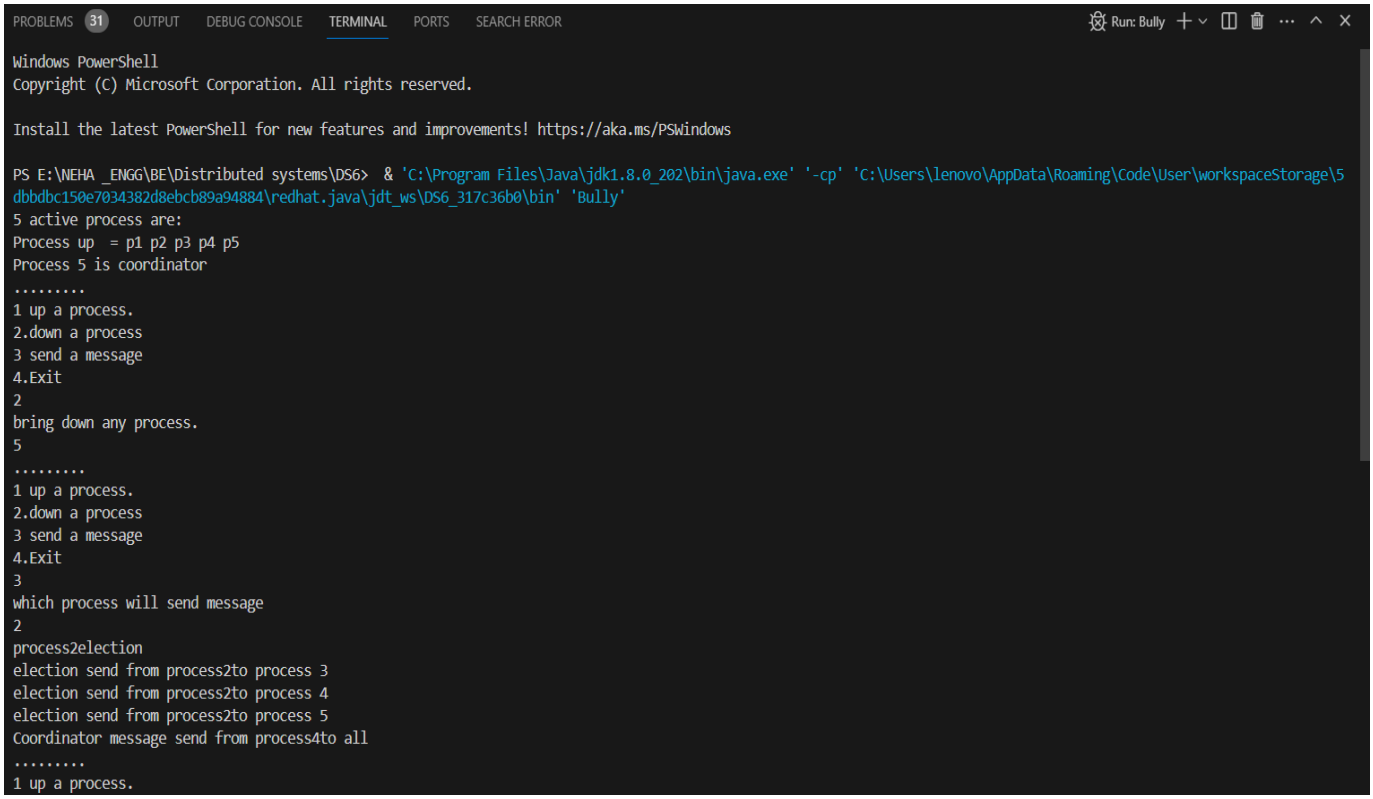
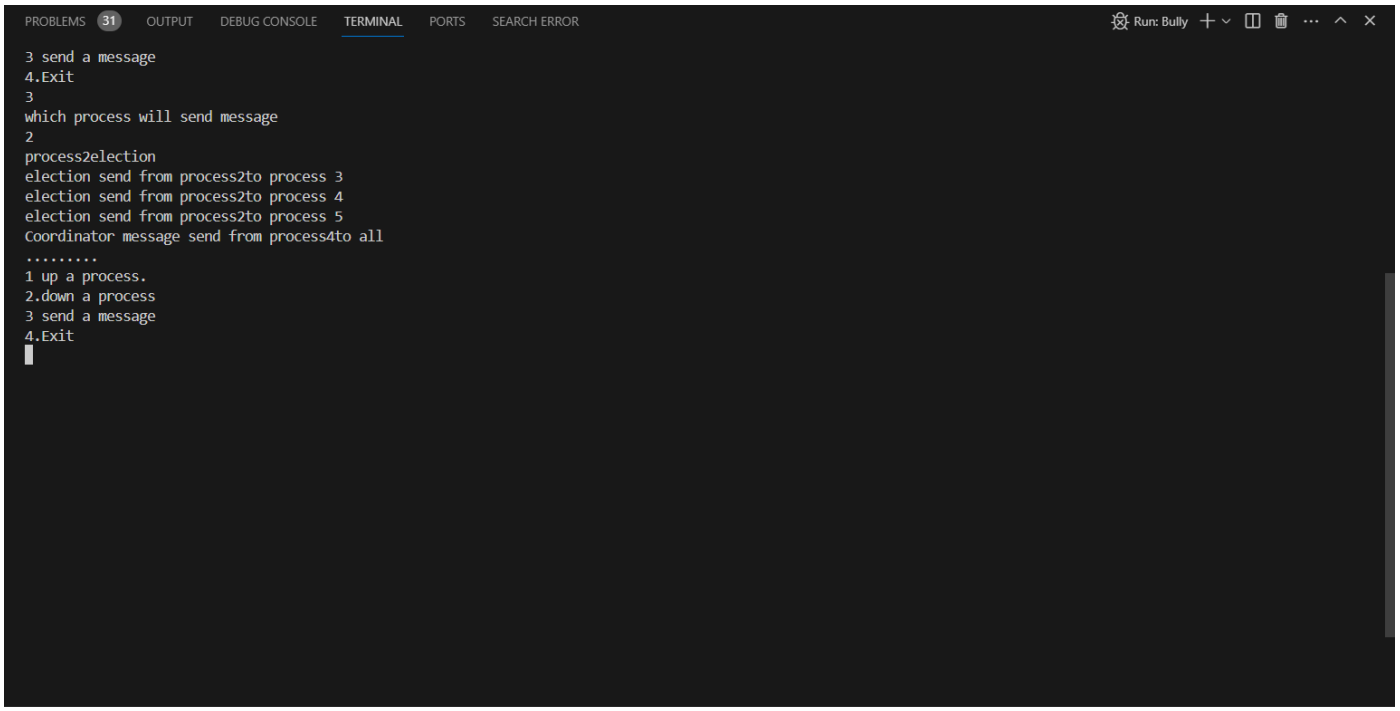
Bully.java

```
import java.io.InputStream;
import java.io.PrintStream;
import java.util.Scanner;

public class Bully {
    static boolean[] state = new boolean[5];
    int coordinator;

    public static void up(int up) {
        if (state[up - 1]) {
            System.out.println("process" + up + "is already up");
        } else {
            int i;
            Bully.state[up - 1] = true;
            System.out.println("process " + up + "held election");
            for (i = up; i < 5; ++i) {
                System.out.println("election message sent from process"
+ up + "to process" + (i + 1));
            }
            for (i = up + 1; i <= 5; ++i) {
                if (!state[i - 1]) continue;
                System.out.println("alive message send from process" +
i + "to process" + up);
                break;
            }
        }
    }

    public static void down(int down) {
        if (!state[down - 1]) {
            System.out.println("process " + down + "is already dowm.");
        } else {
            Bully.state[down - 1] = false;
        }
    }

    public static void mess(int mess) {
        if (state[mess - 1]) {
            if (state[4]) {
                System.out.println("0K");
            } else if (!state[4]) {
                int i;
                System.out.println("process" + mess + "election");
                for (i = mess; i < 5; ++i) {
                    System.out.println("election send from process" +
mess + "to process " + (i + 1));
                }
                for (i = 5; i >= mess; --i) {
                    if (!state[i - 1]) continue;
                    System.out.println("Coordinator message send from
process" + i + "to all");
                    break;
                }
            }
        } else {
            System.out.println("Prccess" + mess + "is down");
```

```
        }
    }

    public static void main(String[] args) {
        int choice;
        Scanner sc = new Scanner(System.in);
        for (int i = 0; i < 5; ++i) {
            Bully.state[i] = true;
        }
        System.out.println("5 active process are:");
        System.out.println("Process up  = p1 p2 p3 p4 p5");
        System.out.println("Process 5 is coordinator");
        do {
            System.out.println(".........");
            System.out.println("1 up a process.");
            System.out.println("2.down a process");
            System.out.println("3 send a message");
            System.out.println("4.Exit");
            choice = sc.nextInt();
            switch (choice) {
                case 1: {
                    System.out.println("bring proces up");
                    int up = sc.nextInt();
                    if (up == 5) {
                        System.out.println("process 5 is co-
ordinator");
                        Bully.state[4] = true;
                        break;
                    }
                    Bully.up(up);
                    break;
                }
                case 2: {
                    System.out.println("bring down any process.");
                    int down = sc.nextInt();
                    Bully.down(down);
                    break;
                }
                case 3: {
                    System.out.println("which process will send
message");
                    int mess = sc.nextInt();
                    Bully.mess(mess);
                }
            }
        } while (choice != 4);
    }
}
```

Output:


PROBLEMS 31 OUTPUT DEBUG CONSOLE TERMINAL PORTS SEARCH ERROR
Run: Bully
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS E:\NEHA _ENGG\BE\Distributed systems\DS6> & 'C:\Program Files\Java\jdk1.8.0_202\bin\java.exe' '-cp' 'C:\Users\lenovo\AppData\Roaming\Code\User\workspaceStorage\5dbbdbc150e7034382d8ebcb89a94884\redhat.java\jdt_ws\DS6_317c36b0\bin' 'Bully'
5 active process are:
Process up = p1 p2 p3 p4 p5
Process 5 is coordinator
.....
1 up a process.
2.down a process
3 send a message
4.Exit
2
bring down any process.
5
.....
1 up a process.
2.down a process
3 send a message
4.Exit
3
which process will send message
2
process2election
election send from process2to process 3
election send from process2to process 4
election send from process2to process 5
Coordinator message send from process4to all
.....
1 up a process.


PROBLEMS 31 OUTPUT DEBUG CONSOLE TERMINAL PORTS SEARCH ERROR
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3 send a message
4.Exit
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