**package** lab8c;

**public** **class** Calculator {

**private** **int** x;

**private** **int** y;

**private** **char** operand;

**private** **int** solution;

**public** Calculator() {

**this**.x = 0;

**this**.y = 0;

**this**.operand = '+';

**this**.solution = 0;

}

**public** Calculator(**int** x, **int** y, **char** operand) {

**this**.x = x;

**this**.y = y;

**this**.operand = operand;

calc(operand);

}

**public** **void** setX(**int** x) {

**this**.x = x;

calc(operand);

}

**public** **void** setY(**int** y) {

**this**.y = y;

calc(operand);

}

**public** **void** setOp(**char** op) {

**this**.operand = op;

calc(operand);

}

**public** CalculatorMemento createMemento() {

CalculatorMemento m = **new** CalculatorMemento(x, y, operand, solution);

**return** m;

}

**public** **void** restore(CalculatorMemento m) {

**this**.x = m.getX();

**this**.y = m.getY();

**this**.operand = m.getOperand();

**this**.solution = m.getSolution();

}

**public** **void** calc(**char** op){

operand = op;

**switch**(operand)

{

**case**('+'): {

**this**.solution = x + y;

**break**;

}

**case**('-'): {

**this**.solution = x - y;

**break**;

}

**case**('\*'): {

**this**.solution = x \* y;

**break**;

}

**case**('/'): {

**this**.solution = x / y;

**break**;

}

}

}

**public** String toString() {

**return** x + " " + operand + " " + y + " = " + solution;

}

}

**package** lab8c;

**public** **class** CalculatorMemento {

**private** **int** x;

**private** **int** y;

**private** **char** operand;

**private** **int** solution;

**public** CalculatorMemento(**int** x, **int** y, **char** operand, **int** solution) {

**this**.x = x;

**this**.y = y;

**this**.operand = operand;

**this**.solution = solution;

}

**public** **int** getX() {

**return** x;

}

**public** **int** getY() {

**return** y;

}

**public** **char** getOperand() {

**return** operand;

}

**public** **void** setOperand(**char** operand) {

**this**.operand = operand;

}

**public** **int** getSolution() {

**return** solution;

}

}

**package** lab8c;

**import** java.util.Scanner;

**public** **class** MainCaretaker {

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

**int** choice = 0;

Scanner in = **new** Scanner(System.***in***);

Calculator calculator = **new** Calculator();

CalculatorMemento CalcMemento = calculator.createMemento();

**while**(choice < 3) {

System.***out***.println("Calculator");

System.***out***.println("What would you like to do?");

System.***out***.println("Hit 1 calculate a solution, 2 to recall last equation, 3 to quit");

choice = in.nextInt();

**switch**(choice) {

**case** 1 : {

System.***out***.println("Enter x");

**int** x = in.nextInt();

System.***out***.println("Enter y");

**int** y = in.nextInt();

System.***out***.println("Enter operand");

**char** op = in.next().charAt(0);

calculator = **new** Calculator(x,y,op);

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

System.***out***.println("Store equation? (Y/N)");

**char** yesOrNo = in.next().toUpperCase().charAt(0);

**if**(yesOrNo == 'Y' )

CalcMemento = calculator.createMemento();

**break**;

}

**case** 2 : {

System.***out***.println("Recalling last equation");

calculator.restore(CalcMemento);

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

**break**;

}

**default** : {

System.***out***.println("Thank you! See you again!");

**break**;

}

}

}

}

}