โครงงานกลางภาค

รายวิชา : CPSC 462 (การเขียนโปรแกรมภาษาจาวา)

เสนอ

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จัดทำโดย

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ประจำปีการศึกษา 2563

มหาวิทยาลัยเนชั่น ลำปาง

คำนำ

โครงงานกลางภาคนี้ ข้าพเจ้าจัดทำขึ้นเพื่อนำเสนอโปรแกรมในรายวิชา CPSC 462 (การเขียนโปรแกรมภาษาจาวา)โดยโครงงานกลางภาคนี้ประกอบไปด้วยโปรแกรมต่างๆที่ได้เรียนมาในภาคเรียนที่ 1 ของรายวิชา CPSC 462 (การเขียนโปรแกรมภาษาจาวา)

ข้าพเจ้าหวังว่าโครงงานปลายภาคเล่มนี้จะทำให้ทุกท่านที่อ่านได้รับความรู้ใน CPSC 462 (การเขียนโปรแกรมภาษาจาวา) ของข้าพเจ้าที่ได้เรียนในภาคเรียนที่ 2

ท้ายสุดนี้ ข้าพเจ้าขอขอบคุณ ผศ.บุรินทร์ รุจจนพันธุ์ และเพื่อนๆที่มีส่วนร่วมในการให้ความช่วยเหลือ ให้คำแนะนำ การเขียนข้อมูลของหัวข้อต่างๆและข้อมูลที่เป็นประโยชน์อย่างยิ่งเพื่อจัดทำโครงงานปลายภาคในครั้งนี้

.....

(นายจักรพัฒน์ ไชยแก้ว)

ผู้จัดทำ

สารบัญ

คำใดไม่ใช่ Reserver Word

abstract	class	extends	if	null	switch
assert	const	false	implements	package	synchronized
as	case	final	import	private	this
and	catch	finally	instanceof	protected	throw
break	default	finish	int	public	throws
byte	do	float	while	return	transient
buy	double	for	interface	short	true
bye	does	from	long	static	try
continue	else	form	native	strictfp	void
char	enum	goto	new	super	volatile

เฉลย

abstract	class	extends	if	null	switch
assert	const	false	implements	package	synchronized
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break	default	finish	int	public	throws
byte	do	float	while	return	transient
buy	double	for	interface	short	true
bye	does	from	long	static	try
continue	else	form	native	strictfp	void
char	enum	goto	new	super	volatile

2.1

```
Class x {
    public static void main(String args [] {
        for(int com=1; com <=4 com++)
            {
                for(int jakkapat=1;jakkapat<=com;jakkapat++)
                {
                    system.out.print (" ");
                }
                System.out.print (com)
                for(int jakkapat=3;jakkapat>=com;jakkapat--)
                {
                    System.out.print ("**");
                }
                System.out.print (com);
                System.out.println();
            }
    }
}
```

เฉลย

```
class x {
    public static void main(String args []) {
        for(int com=1; com <=4; com++)
            {
                for(int jakkapat=1;jakkapat<=com;jakkapat++)
                {
                    System.out.print (" ");
                }
                System.out.print (com);
                for(int jakkapat=3;jakkapat>=com;jakkapat--)
                {
                    System.out.print ("**");
                }
                System.out.print (com);
                System.out.println();
            }
    }
}
```

2.2

```
class  {
  public static void main(String args[]) {
    int c1 = Integer.parseInt(args[]);
    int c2 = Integer.parseInt(args[1]);
    int c3 = Integer.parseInt(args[2]);
    int c4 = Integer.parseInt(args[3];
    System.out.println("c1" + " + " + "c2" + " + " + "c3" + " + " + "c4" + " =
 " + (c1 + c2 + c3 + c4));
    System.out.println("c1" + " - " + "c2" + " - " + "c3" + " - " + "c4" + " =
 " + (c1 - c2 - c3 - c4);
    System.out.println("c1" + " * " + "c2" + " * " + "c3" + " * " + "c4" + " =
 " + (c1 * c2 * c3 * c4));
    System.Out.println("c1" + " / " + "c2" + " / " + "c3" + " / " + "c4" + " =
 " + (c1 / c2 / c3 / c4));
  }
}
```

เฉลย

```
class x {
  public static void main(String args[]) {
    int c1 = Integer.parseInt(args[0]);
    int c2 = Integer.parseInt(args[1]);
    int c3 = Integer.parseInt(args[2]);
    int c4 = Integer.parseInt(args[3]);
    System.out.println("c1" + " + " + "c2" + " + " + "c3" + " + " + "c4" + " =
 " + (c1 + c2 + c3 + c4));
    System.out.println("c1" + " - " + "c2" + " - " + "c3" + " - " + "c4" + " =
 " + (c1 - c2 - c3 - c4));
    System.out.println("c1" + " * " + "c2" + " * " + "c3" + " * " + "c4" + " =
 " + (c1 * c2 * c3 * c4));
    System.out.println("c1" + " / " + "c2" + " / " + "c3" + " / " + "c4" + " =
 " + (c1 / c2 / c3 / c4));
  }
}
```

2.3

```
Class x {
  Public static void main (string args[]) {
    double total ;
    double average = 0 ;
    for (int i = 0 ; i < argslength ; i++) {
      total += Double.parseDouble(args[i]);
    }
    System.out.println(total);
    average = total / args.length ;
    System.out.println(average);
  }
}
```

เฉลย

```
class x {
  public static void main (String args[]) {
    double total = 0 ;
    double average = 0 ;
    for (int i = 0 ; i < args.length ; i++) {
      total += Double.parseDouble(args[i]);
    }
    System.out.println(total);
    average = total / args.length ;
    System.out.println(average);
  }
}
```

2.4

```
class x {
  public static main (String args) {
    int max = 0 ;
    for ( i = 1 ; i < args.length ; i++) {
      if (max = Integer.parseInt(args[i])) {
        max = Integer.parseInt(args[i]) ;
      }
    }
  System.out.Println(max);
  }
}
```

เฉลย

```
class x {
  public static void main (String args[]) {
    int max = 0 ;
    for (int i = 1 ; i < args.length ; i++) {
      if (max <= Integer.parseInt(args[i])) {
        max = Integer.parseInt(args[i]) ;
      }
    }
  System.out.println(max);
  }
}
```

2.5

```
class x {
  public Static void main (string args[]) {
    int min = 0 ;
    for (int i = 1 ; i < args.length ; i++) {
      if (min >= Integer.parseInt(args[i])) {
        min = Integer.parseInt(args[I]) ;
      }
    }
  System.out.printIn(min);
  }
}
```

เฉลย

```
class x {
  public static void main (String args[]) {
    int min = 99 ;
    for (int i = 1 ; i < args.length ; i++) {
      if (min >= Integer.parseInt(args[i])) {
        min = Integer.parseInt(args[i]) ;
      }
    }
  System.out.println(min);
  }
}
```

2.6

```
import javaio.*;
class one
  public static void main(String args[]) Throws IOException {
    bufferedReader stdin = new BufferedReader(new InputStreamReader(system.in)
);
    int i[] = new int[5];
    double a = 0, b = 0, c = 0, d = 0;
    for (int j = 0; j < 5; j++) {
      i[j] = Integer.parseInt(stdin.readLine());
    }
    for (int j = 0; j < 5; j++) {
      a = j[0] + j[1] + j[2] + j[3] + j[4];
      b = j[0] - j[1] - j[2] - j[3] - j[4];
      c = j[0] * j[1] * j[2] * j[3] * j[4];
      d = j[0] / j[1] / j[2] / j[3] / j[4];
    }
    System.out.println("plus = " + a);
    System.out.println("Minus = " + b);
    System.out.println("Multi = " + c);
    System.out.println("Divide = " + d);
  }
}
```

เฉลย

```
import java.io.*;
class one {
  public static void main(String args[]) throws IOException {
    BufferedReader stdin = new BufferedReader(new InputStreamReader(System.in)
);
    int i[] = new int[5];
    double a = 0, b = 0, c = 0, d = 0;
    for (int j = 0; j < 5; j++) {
      i[j] = Integer.parseInt(stdin.readLine());
    }
    for (int j = 0; j < 5; j++) {
      a = j[0] + j[1] + j[2] + j[3] + j[4];
      b = j[0] - j[1] - j[2] - j[3] - j[4];
      c = j[0] * j[1] * j[2] * j[3] * j[4];
      d = j[0] / j[1] / j[2] / j[3] / j[4];
    }
    System.out.println("plus = " + a);
    System.out.println("Minus = " + b);
    System.out.println("Multi = " + c);
    System.out.println("Divide = " + d);
  }
}
```

2.7

```
import java.io.*;
public class two {
  public static void main(String args[]) throws IOException {
    BufferedReader stdin = new bufferedReader(new InputStreamreader(System.ln)
);
    int a[] = new int[5];
    int b[] = new int[5];
    for (int i = 0; i < 5; i++) {
      a[i] = Integer.parseInt(stdin.readLine());
      b[i] = Integer.parseInt(stdin.readLine());
    }

    try {
      for (int i = 0; i < 6; i++) {
        System.out.println(a[i] / b[i]);
      }
    } catch (arrayIndexOutOfBoundsException e) {
      System.out.println("Array เกินครับ รบกวนดู for ดีๆนะ")
    }
  }
}
```

เฉลย

```
import java.io.*;
public class two {
  public static void main(String args[]) throws IOException {
    BufferedReader stdin = new BufferedReader(new InputStreamReader(System.in)
);
    int a[] = new int[5];
    int b[] = new int[5];
    for (int i = 0; i < 5; i++) {
      a[i] = Integer.parseInt(stdin.readLine());
      b[i] = Integer.parseInt(stdin.readLine());
    }

    try {
      for (int i = 0; i < 5; i++) {
        System.out.println(a[i] / b[i]);
      }
    } catch (ArrayIndexOutOfBoundsException e) {
      System.out.println("Array เกินครับ รบกวนดู for ดีๆนะ");
    }
  }
}
```

2.8

```
import java.io*;
class three
  public static void main(String args) {
    BufferedReader stdin = new BufferedReader(System.in);
    int a[] = new int[5];
    int b[] = new int[5];
    for (int i = 0; i < 5; i++) {
      a[i] = Integer.parseInt(stdin.readLine());
      b[i] = Integer.parseInt(stdin.readLine());
    }
    for (int i = 0; i < 5; i++) {
      try {
        System.out.println(a[i] / b[i]);
       catch (ArithmeticException e) {
        System.out.println("คำนวณผิดพลาด  กรุณาเช็คตัวเลขในการคำนวณ");
      }
    }
  }
}
```

เฉลย

```
import java.io.*;
class three {
  public static void main(String args[]) throws IOException {
    BufferedReader stdin = new BufferedReader(new InputStreamReader(System.in)
);
    int a[] = new int[5];
    int b[] = new int[5];
    for (int i = 0; i < 5; i++) {
      a[i] = Integer.parseInt(stdin.readLine());
      b[i] = Integer.parseInt(stdin.readLine());
    }
    for (int i = 0; i < 5; i++) {
      try {
        System.out.println(a[i] / b[i]);
      } catch (ArithmeticException e) {
        System.out.println("คำนวณผิดพลาด  กรุณาเช็คตัวเลขในการคำนวณ");
      }
    }
  }
}
```

2.9

```
import java.io;
class four {
  public static Void main(String args[]) throws IOException {
    BufferedReader stdin = new BufferedReader(new InputStreamReader(System.in)
);
    int i[] = new int[5];
    Int max = 0;
    int min = 999;
    Double total = 0;
    double average = 0;
    for (int j = 0; j < 5; j++) {
      i[j] = Integer.parseInt(stdin.readLine());
    }
    for (int j = 0; j < 5; j++) {
      if (i[j] > max)
      {
        max = i[j];
      }
      if (i[j] < min)
      {
        min = i[j];
      }
      total += i[j];
    }
    average = total / 5;
    system.out.println("max = " + max);
    System.out.println("min = " + min);
    System.out.println("total = " + total);
    System.out.println("average = " + average);
  }
}
```

เฉลย

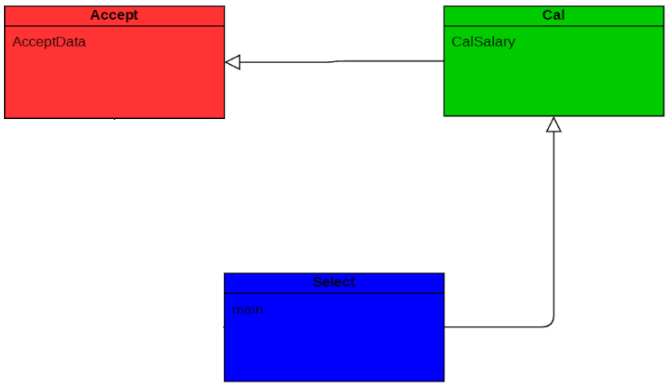
```java
import java.io.*;
class four {
  public static void main(String args[]) throws IOException {
    BufferedReader stdin = new BufferedReader(new InputStreamReader(System.in)
);
    int i[] = new int[5];
    int max = 0;
    int min = 999;
    double total = 0;
    double average = 0;
    for (int j = 0; j < 5; j++) {
      i[j] = Integer.parseInt(stdin.readLine());
    }
    for (int j = 0; j < 5; j++) {
      if (i[j] > max)
      {
        max = i[j];
      }
      if (i[j] < min)
      {
        min = i[j];
      }
      total += i[j];
    }
    average = total / 5;
    System.out.println("max = " + max);
    System.out.println("min = " + min);
    System.out.println("total = " + total);
    System.out.println("average = " + average);
  }
}
```

2.10

```
import java.io.*;
class aa
    static String data [] = new String[3];
    public static void aaa throws IOException{
        BufferedReader numid = new BufferedReader  (System.in);
        for(int i=0;i<3;i++){
            System.out.print("enter id : ");
            data[0][i] = numid.readLine();
            System.out.print("enter name : ");
            data[1][i] = numid.readLine();
            System.out.print("enter salary : ")
            data[2][i] = numid.readLine();

        }
    }
}
class bb extends aa{
    public static void bbb() {
        try {
            aaa);
        int sum = 0 ;
        for(int i=0;i<3;i++){
            sum +=Integer.parseInt(data[2][i]);
            }
        System.out.println("Net salary = " + ((sum*0.93)-500) + " $");
        } catch (Exception e) {
        }
    }
}
class cc extends bb {
    public static void main(String args[]) {

        bbb();
    }
}
```

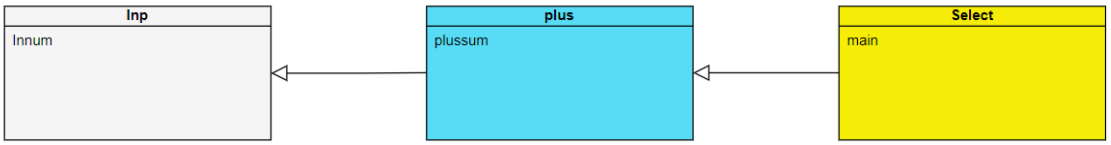
เฉลย

```
import java.io.*;
class aa{
    static String data[][] = new String[3][3];
    public static void aaa() throws IOException{
        BufferedReader numid = new BufferedReader (new InputStreamReader(Syste
m.in));
        for(int i=0;i<3;i++){
            System.out.print("enter id : ");
            data[0][i] = numid.readLine();
            System.out.print("enter name : ");
            data[1][i] = numid.readLine();
            System.out.print("enter salary : ");
            data[2][i] = numid.readLine();

        }
    }
}
class bb extends aa{
    public static void bbb() {
        try {
            aaa();
        int sum = 0 ;
        for(int i=0;i<3;i++){
            sum +=Integer.parseInt(data[2][i]);
            }
        System.out.println("Net salary = " + ((sum*0.93)-500) + " $");
        } catch (Exception e) {
        }
    }
}
class cc extends bb {
    public static void main(String args[]) {

        bbb();
    }
}
```

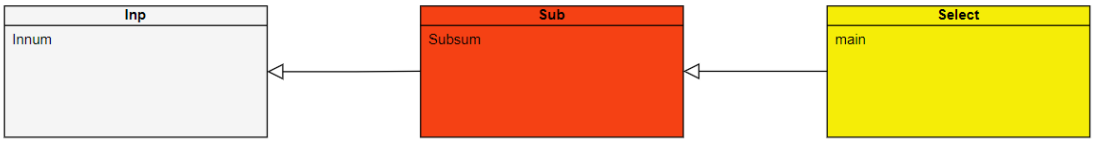



```java
import java.io.*;
class Accept{
    static String data[][] = new String[3][3];
    public static void AcceptData() throws IOException{
        BufferedReader numid = new BufferedReader (new InputStreamReader(Syste
m.in));
        for(int i=0;i<3;i++){
            System.out.print("enter id : ");
            data[0][i] = numid.readLine();
            System.out.print("enter name : ");
            data[1][i] = numid.readLine();
            System.out.print("enter salary : ");
            data[2][i] = numid.readLine();

        }
    }
}
class Cal extends Accept{
    public static void calSalary() {
        try {
            AcceptData();
        int sum = 0 ;
        for(int i=0;i<3;i++){
            sum +=Integer.parseInt(data[2][i]);
            }
        System.out.println("Net salary = " + ((sum*0.93)-500) + " $");
        } catch (Exception e) {
        }
    }
}
class Select extends Cal {
    public static void main(String args[]) {

        calSalary();
    }
}
```

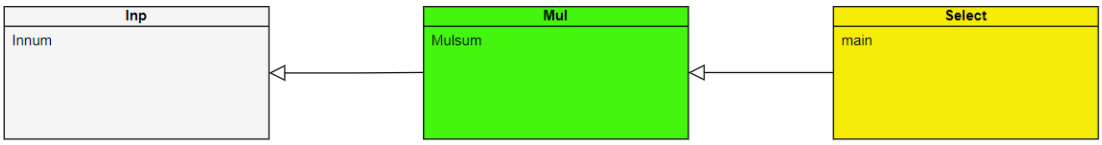

```
import java.io.*;
class Inp{
    static String data[][] = new String[3][3];
    public static void Inname() throws IOException{
        BufferedReader numid = new BufferedReader (new InputStreamReader(Syste
m.in));
        for(int i=0;i<3;i++){
            System.out.print("enter id : ");
            data[0][i] = numid.readLine();
            System.out.print("enter name : ");
            data[1][i] = numid.readLine();
            System.out.print("enter salary : ");
            data[2][i] = numid.readLine();
        }
        for(int i=0;i<3;i++){
            System.out.print(" id : " + data[0][i]);
            System.out.print(" name : " + data[1][i]);
            System.out.print(" salary : " + data[2][i]);
        }
    }
}

class Select extends Cal {
    public static void main(String args[]) {

        Inname();
    }
}
```



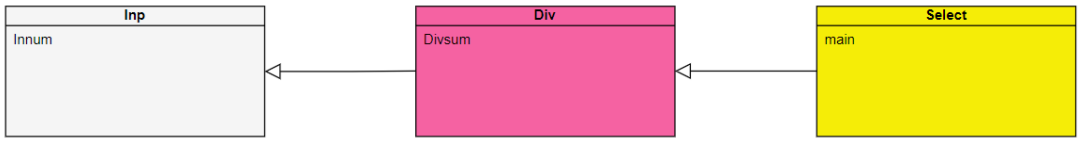

```
import java.io.*;
class inp{
    static String data[] = new String[3];
    public static void ipnum() throws IOException{
        BufferedReader numid = new BufferedReader (new InputStreamReader(Syste
m.in));
        for(int i=0;i<3;i++){
            System.out.print("enter num : ");
            data[i] = numid.readLine();
        }
    }
}
class plus extends inp{
    public static void plussum() {
        try {
            ipnum();
        int sum = 0 ;
        for(int i=0;i<3;i++){
            sum +=Integer.parseInt(data[i]);
            }
        System.out.println("SUM = " + sum );
        } catch (Exception e) {
        }
    }
}
class Select extends plus {
    public static void main(String args[]) {

        plussum();
    }
}
```



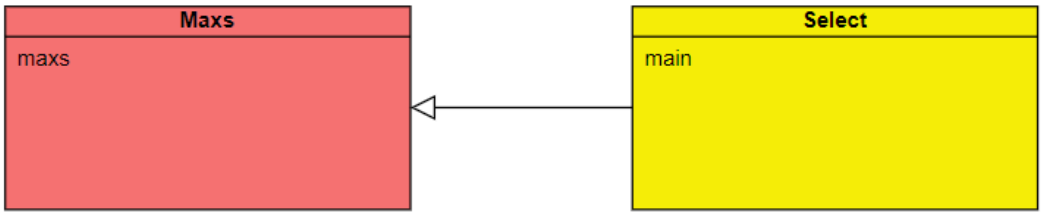

```
import java.io.*;
class inp{
    static String data[] = new String[3];
    public static void ipnum() throws IOException{
        BufferedReader numid = new BufferedReader (new InputStreamReader(Syste
m.in));
        for(int i=0;i<3;i++){
            System.out.print("enter num : ");
            data[i] = numid.readLine();
        }
    }
}
class Sub extends inp{
    public static void Subsum() {
        try {
            ipnum();
        int sum = 0 ;
        for(int i=0;i<3;i++){
            sum = sum - (Integer.parseInt(data[i]));
            }
        System.out.println("SUM = " + sum );
        } catch (Exception e) {
        }
    }
}
class Select extends Sub {
    public static void main(String args[]) {

        Subsum();
    }
}
```



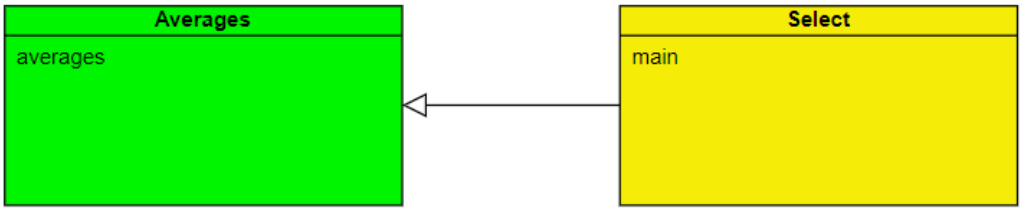

```
import java.io.*;
class inp{
    static String data[] = new String[3];
    public static void ipnum() throws IOException{
        BufferedReader numid = new BufferedReader (new InputStreamReader(Syste
m.in));
        for(int i=0;i<3;i++){
            System.out.print("enter num : ");
            data[i] = numid.readLine();
        }
    }
}
class Mul extends inp{
    public static void Mulsum() {
        try {
            ipnum();
        int sum = 0 ;
        for(int i=0;i<3;i++){
            sum = sum * (Integer.parseInt(data[i]));
            }
        System.out.println("SUM = " + sum );
        } catch (Exception e) {
        }
    }
}
class Select extends Mul {
    public static void main(String args[]) {
        Mulsum();
    }
}
```



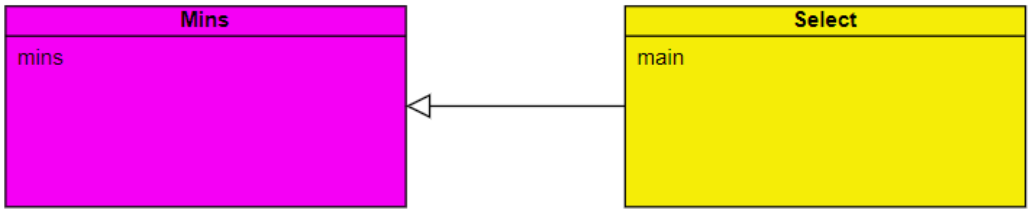

```
import java.io.*;
class inp{
    static String data[] = new String[3];
    public static void ipnum() throws IOException{
        BufferedReader numid = new BufferedReader (new InputStreamReader(Syste
m.in));
        for(int i=0;i<3;i++){
            System.out.print("enter num : ");
            data[i] = numid.readLine();
        }
    }
}
class Div extends inp{
    public static void Divsum() {
        try {
            ipnum();
        int sum = 1 ;
        for(int i=0;i<3;i++){
            sum = sum / (Integer.parseInt(data[i]));
            }
        System.out.println("SUM = " + sum );
        } catch (Exception e) {
        }
    }
}
class Select extends Div {
    public static void main(String args[]) {

        Divsum();
    }
}
```



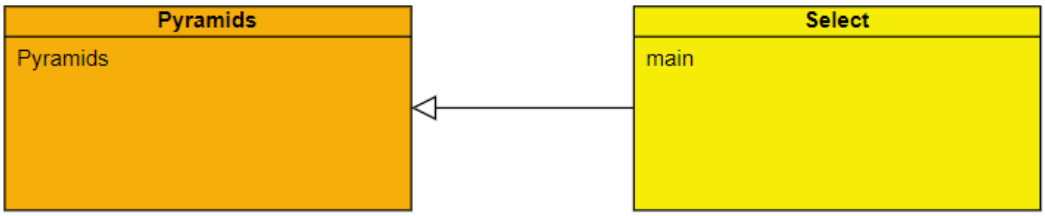

```
class Maxs {
    public static void maxs (String args[]) {
        int max = 0 ;
        for (int i = 1 ; i < args.length ; i++) {
            if (max <= Integer.parseInt(args[i])) {
            max = Integer.parseInt(args[i]) ;
            }
        }
        System.out.println(max);
    }
}
class Select extends Maxs {
    public static void main(String args[]) {
        maxs();
    }
}
```




```
class Averages {
    public static void averages (String args[]) {
        double total = 0 ;
        double average = 0 ;
        for (int i = 0 ; i < args.length ; i++) {
            total += Double.parseDouble(args[i]);
        }
        System.out.println(total);
        average = total / args.length ;
        System.out.println(average);
    }
}
class Select extends Averages {
    public static void main(String args[]) {
        averages();
    }
}
```




```
class Mins {
    public static void mins (String args[]) {
        int min = 99 ;
        for (int i = 1 ; i < args.length ; i++) {
            if (min >= Integer.parseInt(args[i])) {
                min = Integer.parseInt(args[i]) ;
            }
        }
        System.out.println(min);
    }
}
class Select extends Mins {
    public static void main(String args[]) {
        mins();
    }
}
```




```
class Pyramids {
    public static void pyramids(String args []) {
        for (int com=1; com <= 5; com++)
            {
                for (int jakkapat=1; jakkapat <= 4; jakkapat++)
                {
                    System.out.print (com);
                    System.out.print (10-com);
                }
            System.out.println();
        }
    }
}
class Select extends Pyramids {
    public static void main(String args[]) {
        pyramids();
    }
}
```

4

string

```
import java.io.*;
class four {
  public static void main(String args[]) throws IOException {
    BufferedReader stdin = new BufferedReader(new InputStreamReader(System.in)
);
    String[] names = new String[] { "com1", "com2", "com3"};
    for (int i = 0; i < 3; i++) {
        System.out.println("names[" + i + "] = " + names[i]);
    }
  }
}
```

Char

```
public class JavaCharToString {
    public static void main(String[] args) {
        char c = 'X';
        String str = String.valueOf(c);
        String str1 = Character.toString(c);
        System.out.println(c  + str);
        System.out.println(c + str1);
    }
}
```

5

substring

```
class SubStringExample{
    public static void main(String args[]) {
        String str= new String("My name is jakkapat chaikaeo");
        System.out.println(str.substring(15));
        System.out.println(str.substring(15, 20));
    }
 }
```

Div

```
import java.io.*;
class inp{
    static String data[] = new String[3];
    public static void ipnum() throws IOException{
        BufferedReader numid = new BufferedReader (new InputStreamReader(Syste
m.in));
        int sum = 0 ;
        for(int i=0;i<3;i++){
            System.out.print("enter num : ");
            data[i] = numid.readLine();
        }
        for(int i=0;i<3;i++){
        sum = sum / (Integer.parseInt(data[i]));
        }
        System.out.println("SUM = " + sum );
    }
}
```

%

```
import java.io.*;
class inp{
    static String data[] = new String[3];
    public static void ipnum() throws IOException{
        BufferedReader numid = new BufferedReader (new InputStreamReader(Syste
m.in));
        int sum = 0 ;
        for(int i=0;i<3;i++){
            System.out.print("enter num : ");
            data[i] = numid.readLine();
        }
        for(int i=0;i<3;i++){
            if (data[i] % 2 == 0){
                System.out.println(data[i]);
            }
        }

    }
}
```

Max

```
class x {
  public static void main (String args[]) {
    int max = 0 ;
    for (int i = 1 ; i < args.length ; i++) {
      if (max <= Integer.parseInt(args[i])) {
        max = Integer.parseInt(args[i]) ;
      }
    }
  System.out.println(max);
  }
}
```

Min

```
class x {
  public static void main (String args[]) {
    int min = 99 ;
    for (int i = 1 ; i < args.length ; i++) {
      if (min >= Integer.parseInt(args[i])) {
        min = Integer.parseInt(args[i]) ;
      }
    }
  System.out.println(min);
  }
}
```

Total

```
class x {
  public static void main (String args[]) {
    double total = 0 ;
    for (int i = 0 ; i < args.length ; i++) {
      total += Double.parseDouble(args[i]);
    }
    System.out.println(total);
  }
}
```

Average

```
class x {
  public static void main (String args[]) {
    double total = 0 ;
    double average = 0 ;
    for (int i = 0 ; i < args.length ; i++) {
      total += Double.parseDouble(args[i]);
    }
    System.out.println(total);
    average = total / args.length ;
    System.out.println(average);
  }
}
```