

**CHAPTER  
ANS-10**

**คลาสและอ็อบเจ็ค  
(Classes and Objects)**

โจทย์ข้อที่ 1

ข้อ	ข้อมูลหรือเมทอด	คำตอบ
1.	Math.sqrt(x)	C
2.	p.colorCode(s)	D
3.	Array.equals(a, b)	C
4.	v.x	B
5.	System.getProperties()	C
6.	Integer.MAX_VALUE	A
7.	kb.nextInt()	D

ข้อ	ข้อมูลหรือเมทอด	คำตอบ
8.	rectangle.setSize(w, h)	D
9.	Math.PI	A
10.	a.appendArrays(x,y)	D
11.	std.grad	B
12.	Sql.borders(a,b)	C
13.	in.readLine()	D
14.	i.id_code	B

โจทย์ข้อที่ 2

```

Hello C
Hello A
Hello F
See you again Java!

28 84 47 72
69 45
91 40 28
42 34 37
13 26 87 35

Sum 0 : 243
Sum 1 : 229
Sum 2 : 199
Sum 3 : 107
    
```

โจทย์ข้อที่ 3

```

flavorSet(0):
Chocolate
Mocha Almond Fudge
mint Chip
Rum Raisin
Strawberry
flavorSet(1):
Chocolate
Strawberry
Mocha Almond Fudge
Rum Raisin
mint Chip
    
```

โจทย์ข้อที่ 4

```

public class Account {
    public static double balance;
    public Account() { balance = 0.0; }
    public Account(double money) { balance = money; }
    public double getbalance() { return balance; }
    public static void deposit(double money) { balance += money; }
    public static double withdraw(double money) {
        if (balance >= money) {
            balance -= money;
            return money;
        } else {
            return 0.0;
        }
    } //End of method
} //End of Class
    
```

### โจทย์ข้อที่ 5

```
import java.util.Scanner;
public class StudentPassword {
    public static long[] pass(int n) {
        long pwd[] = new long[n];
        int i = 0;
        while (i < n) {
            long x = (long)(Math.random() * 1000000);
            if ((x >= 100000) && check(x, i, pwd)) {
                pwd[i] = x;
                i++;
            }
        } //End of while
        return pwd;
    }
    public static boolean check(long x, int n, long p[]) {
        int i = 0;
        for (; i < n; i++) {
            if (p[i] == x) { break; }
        } //End of for i
        if (i == n) return true;
        else return false;
    }
    public static void display(long stid[], long stpwd[]) {
        for (int i = 0; i < stid.length; i++) {
            System.out.println(stid[i] + "\t" + stpwd[i]);
        }
    }
    public static void main(String[] args) {
        Scanner kb = new Scanner(System.in);
        System.out.print("Enter n : ");
        int n = kb.nextInt();
        long id[] = new long[n];
        for (int i = 0; i < n; i++) {
            System.out.print("Enter Student ID : ");
            id[i] = kb.nextLong();
        }
        long p[] = pass(n);
        display(id, p);
    }
}
```

### โจทย์ข้อที่ 6

```
public class DigitGame {
    public int totalScore = 0;
    public String randomDigit(int n) {
        String sDigit = "";
        for (int i = 0; i < n; i++) {
            int x = (int)(Math.random() * 10);
            sDigit += x;
        }
        return sDigit;
    }
    public int guessDigitCheck(String sGuess, String sRandom) {
        if (sGuess.length() == 2) {
            if (sGuess.equals(sRandom)) return 7;
            else return 0;
        } else if (sGuess.length() == 3) {
            if (sGuess.equals(sRandom)) return 50;
            else {
                int digGuess[] = new int[10];
                int digRandom[] = new int[10];
            }
        }
    }
}
```

```

        for (int i = 0; i < 3; i++) {
            digGuess[Character.digit(sGuess.charAt(i),10)]++;
            digRandom[Character.digit(sRandom.charAt(i),10)]++;
        } //End of for i
        int c = 0;
        while (c < 10)
            if (digGuess[c] != digRandom[c]) break;
            else c++;
        if (c == 10) return 10;
        else return 0;
    } //End of else
} else { return 0; }
}
}
public int checkScore(String g, String r, int s) {
    int score = guessDigitCheck(g, r) * s;
    totalScore = totalScore + score;
    return score;
}
}

import java.util.Scanner;
public class RunDigitGame {
    public static void main(String[] args) {
        Scanner kb = new Scanner(System.in);
        String name = "";
        String guess = "";
        int score = 0, i = 1;
        DigitGame dg = new DigitGame();
        while (true) {
            guess = "";
            System.out.println("==== Guess Digit Game " + (i++) + " ====");
            System.out.print("Enter name : ");
            name = kb.next();
            if (name.equals("End")) {
                System.out.println("Total score : " + dg.totalScore);
                break;
            }
            while (guess.length() < 2 || guess.length() > 3) {
                System.out.print("Enter guess digit : ");
                guess = kb.next();
            }
            System.out.print("Enter score : ");
            score = kb.nextInt();
            String ranDigit = dg.randomDigit(guess.length());
            int getScore = dg.checkScore(guess, ranDigit, score);
            System.out.println(name + "/" + guess + "/" + score + " : " +
                getScore + " (" + ranDigit + ")");
        } //End of while (true)
    }
}

```

### โจทย์ข้อที่ 7

```

0,null
101,Samuk
103,Taksin
101,Samuk
Samuk Grade :U
Taksin Grade :U

```

### โจทย์ข้อที่ 8

```
0,0
6
10
60
4
-1
Only A for me
Only F for me
5
5
7

35
63
2
I love Java
```

### โจทย์ข้อที่ 9

```
import java.util.Scanner;
public class RunCarPark {
    public static void main(String[] args) {
        Scanner kb = new Scanner(System.in);
        CarPark c = new CarPark();
        while (true) {
            System.out.print("Enter Code (1-4) : ");
            int code = kb.nextInt();
            if (code == 1) {
                if (c.full()) System.out.println("NO ENTRY");
                else System.out.println("ENTRY");
            } else if (code == 2) {
                if (c.full() == false) {
                    int sp[] = c.getAddress();
                    System.out.println("Row:" + sp[0] + ", Column:" + sp[1]);
                    c.park(sp[0], sp[1]);
                } else {
                    System.out.println("Not ready for park");
                } //End of if c.full()
            } else if (code == 3) {
                System.out.print("Row: ");
                int row = kb.nextInt();
                System.out.print("Column: ");
                int col = kb.nextInt();
                c.collect(row, col);
            } else if (code == 4) {
                System.out.println("Exit program"); break;
            } else { }
        } //End of while (true)
    } //End of main()
}
```

```

public class CarPark {
    private boolean[][] space = new boolean[20][4];

    public int getSpaces() {
        int n = 0;
        for (int i = 0; i < space.length; i++) {
            for (int j = 0; j < space[i].length; j++)
                if (space[i][j] == false) n++;
        }
        return n;
    } //End of getSpace()

    public int[] getAddress() {
        int addr[] = new int[2];
        for (int i = 0; i < space.length; i++) {
            for (int j = 0; j < space[i].length; j++) {
                if (space[i][j] == false) {
                    addr[0] = i; addr[1] = j;
                    return addr;
                } //End of if
            } //End of for j
        } //End of for i
        addr[0] = -1; addr[1] = -1;
        return addr;
    } //End of getAddress()

    public boolean full() {
        CarPark c = new CarPark();
        if (c.getSpaces() > 0) return false;
        else return true;
    } //End of full()

    public void park(int r, int c) {
        if (space[r][c] == true) {
            System.out.println("Not ready for park");
        } else {
            space[r][c] = true;
            System.out.println("Car park ready");
        }
    } //End of park()

    public void collect(int r, int c) {
        if (space[r][c] == false) {
            System.out.println("Car park not valid position");
        } else {
            space[r][c] = false;
            System.out.println("Car leave");
        }
    } //End of collect()
}

```

**CHAPTER  
ANS-11****การประกอบและการสืบทอด  
(Composition and Inheritance)**โจทย์ข้อที่ 1

```
1
5
0
1
10
10
5
```

โจทย์ข้อที่ 2

```
public class InterestBearingAccount extends Account {
    public final double default_interest = 7.95;
    public double interest_rate;

    public InterestBearingAccount() {
        super();
        interest_rate = default_interest;
    } //End of constructor

    public InterestBearingAccount(double money) {
        super(money);
        interest_rate = default_interest;
    } //End of constructor

    public InterestBearingAccount(double money, double interest) {
        super(money);
        interest_rate = interest;
    } //End of constructor

    public void deposit(double money) {
        if (money > 0.0) super.deposit(money);
        else System.out.println("Invalid Money");
    } //End of deposit method

    public double withdraw(double money) {
        if (money > 0.0) {
            return super.withdraw(money);
        } else {
            System.out.println("Invalid Money");
            return 0.0;
        }
    } //End of withdraw method

    public void addMonthlyInterest() {
        super.balance = super.balance + (super.balance*interest_rate/100)/12;
    }

    public double getInterestRate() {
        return interest_rate;
    }
} //End of class
```

```
public class AccountDemo {
    public static void main(String[] args) {
        InterestBearingAccount acc1 = new InterestBearingAccount();
        InterestBearingAccount acc2 = new InterestBearingAccount(5000);
        acc1.deposit(4500);
        acc2.deposit(1000);
        System.out.println(acc1.withdraw(6100));
        System.out.println(acc2.withdraw(2500));
        acc1.addMonthlyInterest();
        acc2.addMonthlyInterest();
        for (int i = 1; i < 11; i++) {
            acc1.addMonthlyInterest();
            acc2.addMonthlyInterest();
        }
        System.out.println(acc1.getbalance());
        System.out.println(acc2.getbalance());
        InterestBearingAccount acc3;
        acc3 = new InterestBearingAccount(acc1.getbalance(), 9.45);
        acc3.addMonthlyInterest();
        System.out.println(acc3.getbalance() + "\t" +
            acc3.getInterestRate());
    }
}
```

โจทย์ข้อที่ 3 ยังไม่ได้ทำเฉลยในข้อนี้

โจทย์ข้อที่ 4

ผลลัพธ์ Part 1

```
<<B>>
<<A>>
<<B>>
1
2
<<A>>
1
<<C>>
4
<<A>>
<<B>>
<<C>>
9
```

ผลลัพธ์ Part 2

```
<<B>>
0
<<A>>
0
<<A>>
1
<<C>>
5
c = 2
```

โจทย์ข้อที่ 5

```
public class Point3D extends Point{
    int z;
    public Point3D(int x, int y, int z) { super(x,y); this.z = z; }
    public String toString() { return "(" + x + "," + y + "," + z + ")"; }
    public boolean equals(Point3D p){
        if( p.x == this.x && p.y == this.y && p.z == this.z ) return true;
        else return false;
    }
    double distanceTo(Point3D p){
        int dX = Math.abs(this.x - p.x);
        int dY = Math.abs(this.y - p.y);
        int dZ = Math.abs(this.z - p.z);
        return Math.sqrt(Math.pow(dX,2)+Math.pow(dY,2)+Math.pow(dZ,2));
    }
}
```

### โจทย์ข้อที่ 6

```
public class Rectangle {
    Point pLT; // point for Left and Top
    Point pRD; // point for Right and Down
    public Rectangle(Point pLT, Point pRD) {
        // Check Rectangle
        if(pLT.x == pRD.x || pLT.y == pRD.y) {
            System.out.println("Not A Rectangle");
        } else {
            this.pLT = pLT; this.pRD = pRD;
        }
    }
    double area() {
        return Math.abs(pLT.x-pRD.x)*Math.abs(pLT.y-pRD.y);
    }
    public boolean equals(Object obj) {
        Rectangle rec = (Rectangle) obj;
        if(Math.abs(this.pLT.x-this.pRD.x) ==
            Math.abs(rec.pLT.x-rec.pRD.x) &&
            Math.abs(this.pLT.y-this.pRD.y) ==
            Math.abs(rec.pLT.y-rec.pRD.y))
            return true;
        else return false;
    }
    boolean contrains(Point p) {
        int iL, iR, iT, iD;

        if(pLT.x > pRD.x) { iR = pLT.x; iL = pRD.x; }
        else { iR = pRD.x; iL = pLT.x; }

        if(pLT.y > pRD.y) { iT = pLT.y; iD = pRD.y; }
        else { iT = pRD.y; iD = pLT.y; }

        if((p.x >= iL) && (p.x <= iR) && (p.y >= iD) && (p.y <= iT))
            return true;
        else return false;
    }
}
```

### โจทย์ข้อที่ 7

```
public class SuperArea extends SuperShape {
    double w, h, b;
    SuperArea() { this.w = 0.0; this.h = 0.0; this.b = 0.0; }
    double getArea1(double w) {
        this.w = w;
        super.name = "Rectangle";
        return w * w;
    }
    double getArea2(double h, double b) {
        this.h = h; this.b = b;
        super.name = "Triangle";
        return 0.5 * h * b;
    }
}
```

```
import java.util.Scanner;
public class RunSuperArea {
    public static void main(String[] args) {
        Scanner kb = new Scanner(System.in);
        SuperArea sa = new SuperArea();
        while (true) {
            System.out.print("Enter Type : ");
            String type = kb.next();
            type = type.toUpperCase();
            if (type.charAt(0) == 'C') {
                System.out.print("Enter Radius : ");
                double radius = kb.nextDouble();
                double area = sa.getCircle(radius);
                System.out.println("Type : " + sa.getName());
                System.out.println("Radius : " + radius);
                System.out.println("Area : " + area);
            } else if (type.charAt(0) == 'W') {
                System.out.print("Enter Wide : ");
                double wide = kb.nextDouble();
                double area = sa.getAreal(wide);
                System.out.println("Type : " + sa.getName());
                System.out.println("Wide : " + wide);
                System.out.println("Area : " + area);
            } else if (type.charAt(0) == 'T') {
                System.out.print("Enter High : ");
                double high = kb.nextDouble();
                System.out.print("Enter Base : ");
                double base = kb.nextDouble();
                double area = sa.getArea2(high, base);
                System.out.println("Type : " + sa.getName());
                System.out.println("High : " + high);
                System.out.println("Base : " + base);
                System.out.println("Area : " + area);
            } else if (type.charAt(0) == 'E') {
                break;
            } else { }
        } //End of while
    }
}
```

**CHAPTER  
ANS-12****การอ่านเพิ่มข้อมูล  
(Reading Data File)**โจทย์ข้อที่ 1

```
import java.util.Scanner;
import java.io.*;
public class Test {
    public static void main(String[] args) throws IOException {
        Scanner sc = new Scanner(new File("D:/score.txt"));
        while (true) {
            if (!sc.hasNext()) break;
            System.out.print(sc.nextLong() + "\t");
            double s = sc.nextDouble();
            if (s > 60.0) System.out.println("S");
            else System.out.println("U");
        } //End of while
    } //End of method
}
```

โจทย์ข้อที่ 2

```
import java.util.Scanner;
import java.io.*;
public class TestNumber {
    public static void main(String[] args) throws IOException {
        Scanner sc = new Scanner(new File("D:/number.txt"));
        int col[] = new int[4];
        while (true) {
            if (!sc.hasNext()) break;
            String s = sc.nextLine();
            int sum = 0, n = 0, len = s.length();
            String stNum = "", tempS = "";
            for (int i = 0; i < len; i++) {
                if (s.indexOf(".") > 0) {
                    stNum = s.substring(0, s.indexOf("."));
                    tempS += stNum + "\t";
                    s = s.substring(s.indexOf(".") + 1);
                    n = Integer.parseInt(stNum);
                    sum += n;
                    col[i] = col[i] + n;
                } else {
                    tempS += s + "\t";
                    n = Integer.parseInt(s);
                    sum += n;
                    col[i] = col[i] + n;
                    break;
                }
            }
            } //End of for
        System.out.println(tempS + "= " + sum);
    } //End of while
    int colSum = col[0] + col[1] + col[2] + col[3];
    System.out.println("=====");
    System.out.println(col[0] + "\t" + col[1] + "\t" + col[2] + "\t"
        + col[3] + "\t= " + colSum);
} //End of method
}
```

### โจทย์ข้อที่ 3

```
import java.util.Scanner;
import jlab.WordScanner;
import java.io.*;
public class CountLove {
    public static void main(String[] args) throws IOException {
        Scanner sc = new Scanner(new File("D:/song.txt"));
        WordScanner wsc = new WordScanner(new File("D:/song.txt"));
        int w1 = 0, w2 = 0;
        String str = "";
        while (true) {
            if (!wsc.hasNext()) break;
            String s = wsc.nextWord().toLowerCase();
            if (s.equals("love")) w1++;
        }
        while (true) {
            if (!sc.hasNext()) break;
            String s = sc.nextLine();
            String sNew = "";
            for (int i = 0; i < s.length(); i++)
                if (s.charAt(i) != ' ') { sNew += s.charAt(i); }
            sNew = sNew.toLowerCase();
            while (sNew.length() > 0) {
                if (sNew.indexOf("love") >= 0) {
                    w2++; sNew = sNew.substring(sNew.indexOf("love") + 4);
                } else { break; }
            } //End of while
        } //End of while true
        System.out.println("Count Word 1 : " + w1);
        System.out.println("Count Word 2 : " + w2);
    }
}
```

### โจทย์ข้อที่ 4

```
import java.util.Scanner;
import java.io.*;
public class TestText {
    public static void main(String[] args) throws IOException {
        Scanner sc = new Scanner(new File("D:/data.txt"));
        int sum = 0, c = 0;
        String str = "";
        while (true) {
            if (!sc.hasNext()) break;
            String s = sc.nextLine();
            for (int i = 0; i < s.length(); i++) {
                if (Character.isDigit(s.charAt(i))) {
                    sum += Character.digit(s.charAt(i), 10); c++;
                } else {
                    str += s.charAt(i);
                } //End of if
            } //End of for
        } //End of while
        System.out.println("Sum : " + sum);
        System.out.println("Avg : " + ((double) sum / (double) c));
        System.out.println("Len : " + str.length());
    }
}
```

โจทย์ข้อที่ 5

```
import java.util.Scanner;
import java.io.*;
public class Test {
    public static void main(String[] args) throws IOException {
        Scanner sc1 = new Scanner(new File("D:/data1.txt"));
        Scanner sc2 = new Scanner(new File("D:/data2.txt"));
        int f1 = 0, f2 = 0;
        int c = 1;
        while (true) {
            if (!sc1.hasNext()) break;
            String s = sc1.nextLine();
            if (c <= 2) { c++; continue; }
            s = s.substring(s.indexOf(".") + 1).trim();
            s = s.substring(10).trim();
            if (s.equals("F")) { f1++; }
        } //End of while
        c = 1;
        while (true) {
            if (!sc2.hasNext()) break;
            String s = sc2.nextLine();
            if (c <= 2) { c++; continue; }
            s = s.substring(s.indexOf(".") + 1).trim();
            s = s.substring(10).trim();
            if (s.equals("F")) { f2++; }
        } //End of while
        System.out.println("F Semester 1/2550 : " + f1);
        System.out.println("F Semester 1/2551 : " + f2);
        if (f1 > f2) {
            System.out.println("Number of F Semester 1/2550 more than
                               Number of F Semester 1/2551");
        } else if (f1 == f2) {
            System.out.println("Number of F Semester 1/2550 equal
                               Number of F Semester 1/2551");
        } else {
            System.out.println("Number of F Semester 1/2550 less than
                               Number of F Semester 1/2551");
        }
    } //End of method
}
```