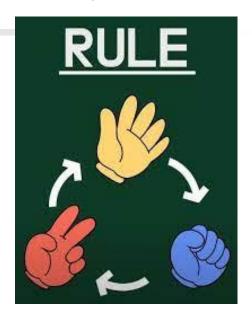
가위바위보 게임 (객체지향 프로그래밍)

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```
public static void main(String[] args) {
  Scanner keyboard = new Scanner(System.in);
  String computer, man, result = "";
  Random random = new Random(System. currentTimeMillis());
  int com = random.nextInt(3);
  if (com == 1) {
     computer = "가위";
  } else if (com == 2)
     computer = "바위";
  else
     computer = "보";
  System. out.println("가위 바위 보 게임입니다.₩n가위, 바위, 보 중에서 입력하세요");
  man = keyboard.next();
```







```
if (man.equals("가위")) {
  if (computer.equals("가위"))
     result = "비겼습니다.";
  else if (computer.equals("바위"))
     result = "영희가 이겼습니다.";
  else
     result = "철수가 이겼습니다.";
} else if (man.equals("바위")) {
  switch (computer) {
     case "가위":
       result = "철수가 이겼습니다.";
       break;
     case "바위":
       result = "비겼습니다.";
       break;
     case "보":
       result = "영희가 이겼습니다.";
  }
```







```
} else {
    if (computer.equals("가위"))
        result = "영희가 이겼습니다.";
    else if (computer.equals("바위"))
        result = "철수가 이겼습니다.";
    else
        result = "비겼습니다.";
}
System. out.printf("사람은 %s를 내고, 컴퓨터는 %s를 내면, %s₩n", man, computer, result);
}
```







```
public static void main(String[] args) {
    Scanner keyboard = new Scanner(System.in);
    Random random = new Random(System.currentTimeMillis());
    int com = random.nextInt(3); // 0,1,2
    int user;
    String[] str = {"가위", "바위", "보"};

System.out.println("====================);
    System.out.print("\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\te
```







```
switch (com - user) {
  case 2:
  case -1:
     System. out. println ("사용자 Win");
     break;
  case 1:
  case -2:
     System. out. println("컴퓨터 Win");
     break;
  default:
     System. out. println ("비겼습니다.");
```







Modeling

Computer

Man

GameManager





가위바위보 게임: 문제 파악



- 객체를 이용하여 가위바위보 게임 프로그램을 작성
- 입력내용 컴퓨터, 사용자가 가위, 바위, 보
- 출력결과 게임 결과 (승/패/무승부)
- ■클래스
 - 사람 Class
 - ■컴퓨터 Class
 - GameManager Class







- ■계산 방법
 - 사람(man)과 컴퓨터(computer)의 입력 값을 임의의 연산 (man computer)의 값으로 경우의 수 판정

man	computer	man - computer	판정
*	*	0	비김
1(가위)	2(바위)	-1	computer 승리
1(가위)	3(보)	-2	man 승리
2(바위)	1(가위)	1	man 승리
2(바위)	3(보)	-1	computer 승리
3(보)	1(가위)	2	computer 승리
3(보)	2(바위)	1	man 승리





가위바위보 게임: 문제 파악



- Computer Class
 - 번호 (comNum): 0 =
- Man Class
 - 번호
- GameManager Class
 - ■게임 승패
 - ■게임 승률 계산





가위바위보 게임: 문제 파악



- Computer Class
 - 번호 (comNum): 0 =
- Man Class
 - 번호
- GameManager Class
 - ■게임 승패
 - ■게임 승률 계산







Computer.JAVA

```
public class Computer {
  private int num;
  public void readData(){
     Random random = new Random(System. currentTimeMillis());
     num = random.nextInt(3);
  }
  int getNum() {
     return num;
  @Override
  public String toString() {
     return num == 0 ? "보": (num == 1 ? "가위": (num == 2 ? "바위": ""));
```







Man.JAVA







Man.JAVA

```
public void readData() throws IOException {
  Scanner scan = new Scanner(System. in);
  while (true) {
     System. out. print ("숫자를 입력하세요! (가위 = 1, 바위 = 2, 보 = 0): ");
     number = scan.nextInt();
     if (number >= 0 && number <= 2) {
       break;
     } else {
       System. err.print("잘못된 입력입니다. 다시 입력하세요.");
       System.in.read();
```







GameManager.JAVA

```
public class GameManager {
    private Computer computer;
    private Man man;

public GameManager(Computer computer, Man man) {
    this.computer = computer;
    this.man = man;
    }
```







GameManager.JAVA

```
void result(){
   String result = "";
   int test = computer.getNum() - man.getNum();
   if (test == 0)
      result = "무승부";
   else if (test == -1 || test == 2)
      result ="사용자가 승리";
   else if (test == -2 \mid \mid \text{ test } == 1)
      result = "컴퓨터가 승리";
   System. out. println(result);
```







Main.JAVA

```
public static void main(String[] args) throws IOException {
  Scanner keyboard = new Scanner(System. in);
  boolean flag = true;
  Computer computer = new Computer();
  Man man = new Man();
  while (flag) {
     computer.readData();
     man.readData();
     System. out. println ("사용자: " + man);
     System. out. println ("컴퓨터:" + computer);
     GameManager manager = new GameManager(computer, man);
     manager.result();
```







Main.JAVA

```
System. out.print("다시 하시겠습니까? Y/N ");
while (true) {
  char answer = keyboard.next().charAt(0);
  if (answer == 'N' || answer == 'n') {
     System. out. println ("게임을 마칩니다.");
     keyboard.close();
     flag = false;
     break;
  } else if (answer == 'Y' || answer == 'y') {
     System. out. println ("게임을 다시 시작합니다!");
     break;
  } else {
     System. err. print("잘못된 값입니다. 다시 입력하세요. Y/N ");
     System. in. read();
```



가위바위보 게임: 문제 파악



- Game Class
 - 번호
- Computer Class
- Man Class
- GameManager Class
 - ■게임 승패
 - ■게임 승률 계산







Game.JAVA

```
abstract public class Game {
  private int num;
  public int getNum() {
     return num;
  public void setNum(int num) {
     this.num = num;
  abstract public int readData() throws IOException;
  @Override
   public String toString() {
     return num == 0 ? "보": (num == 1 ? "가위": (num == 2 ? "바위": ""));
```







Computer.JAVA

```
public class Computer extends Game {
    @Override
    public int readData() {
        Random random = new Random(System.currentTimeMillis());
        return random.nextInt(3);
    }
}
```







Man.JAVA

```
public class Man extends Game {
  public int readData() throws IOException {
     int number;
     Scanner scan = new Scanner(System. in);
     while (true) {
       System. out.print("숫자를 입력하세요! (가위 = 1, 바위 = 2, 보 = 0): ");
       number = scan.nextInt();
       if (number >= 0 && number <= 2) {
          break:
        } else {
          System. err. print("잘못된 입력입니다. 다시 입력하세요.");
          System. in. read();
     return number;
```





Main.JAVA

```
public static void main(String[] args) throws IOException {
  Scanner keyboard = new Scanner(System. in);
  boolean flag = true;
  Computer computer = new Computer();
  Man man = new Man();
  while (flag) {
     computer.setNum(computer.readData());
     man.setNum(man.readData());
     System. out. println ("사용자: " + man);
     System. out. println ("컴퓨터:" + computer);
     GameManager manager = new GameManager(computer, man);
     manager.result();
```







Main.JAVA

```
System. out. print ("다시 하시겠습니까? Y/N");
while (true) {
  char answer = keyboard.next().charAt(0);
  if (answer == 'N' || answer == 'n') {
     System. out. println ("게임을 마칩니다.");
     keyboard.close();
     flag = false;
     break;
  } else if (answer == 'Y' || answer == 'y') {
     System. out. println ("게임을 다시 시작합니다!");
     break:
  } else {
     System. err.print("잘못된 값입니다. 다시 입력하세요. Y/N ");
     System. in. read();
```



가위바위보 게임: 문제 파악



- Game Class
 - 번호
- GameInterface Interface

- Computer Class
- Man Class
- GameManager Class
 - ■게임 승패
 - ■게임 승률 계산







Game.JAVA

```
public class Game {
  private int num;
  public int getNum() {
     return num;
  public void setNum(int num) {
     this.num = num;
  @Override
  public String toString() {
     return num == 0 ? "보": (num == 1 ? "가위": (num == 2 ? "바위": ""));
```







GameInterface.JAVA

```
public interface GameInterface {
   int readData() throws IOException;
}
```







Computer.JAVA

```
public class Computer extends Game implements GameInterface {
    @Override
    public int readData() {
        Random random = new Random(System.currentTimeMillis());
        return random.nextInt(3);
    }
}
```







Man.JAVA

```
public class Man extends Game implements GameInterface{
  public int readData() throws IOException {
     int number;
     Scanner scan = new Scanner(System. in);
     while (true) {
       System. out. print("숫자를 입력하세요! (가위 = 1, 바위 = 2, 보 = 0): ");
       number = scan.nextInt();
       if (number >= 0 && number <= 2) {
          break:
        } else {
          System. err. print("잘못된 입력입니다. 다시 입력하세요.");
          System. in. read();
     return number;
```





Main.JAVA

```
public class Main {
  public static void main(String[] args) throws IOException {
     Scanner keyboard = new Scanner(System. in);
     boolean flag = true;
     Computer computer = new Computer();
     Man man = new Man();
     while (flag) {
        computer.setNum(computer.readData());
        man.setNum(man.readData());
        System. out. println ("사용자:" + man);
        System. out. println ("컴퓨터:" + computer);
        GameManager manager = new GameManager(computer, man);
        manager.result();
```







Main.JAVA

```
System. out.print("다시 하시겠습니까? Y/N ");
while (true) {
  char answer = keyboard.next().charAt(0);
  if (answer == 'N' || answer == 'n') {
     System. out. println ("게임을 마칩니다.");
     keyboard.close();
     flag = false;
     break;
  } else if (answer == 'Y' || answer == 'y') {
     System. out. println ("게임을 다시 시작합니다!");
     break;
  } else {
     System. err. print("잘못된 값입니다. 다시 입력하세요. Y/N ");
     System. in. read();
```



369 Game



- 0 ~ 99까지의 정수를 Keyboard로부터 입력 받고 정수에 3, 6, 9중 하나가 있는 경우는 "박수짝"을 출력하고 두 개 있는 경우는 "박수짝짝"을 출력하는 프로그램을 작성하라
- 예) Keyboard로 입력된 수가 13인 경우 "박수짝"을, 36인 경우 "박수짝짝"을 출력하면 됨
- 단, 0을 입력하면 프로그램 종료한다





369 Game



```
public class Game369 {
   private int num;
   public Game369(int num) {
     this.num = num;
   public void game() {
     int t = num / 10;
     int o = num \% 10;
     if (((t == 3) | | (t == 6) | | (t == 9)) && ((o == 3) | | (o == 6) | | (o == 9)))
        System. out. println("박수-짝짝");
     else if (((t == 3) | | (t == 6) | | (t == 9)) | |
                                           ((o == 3) | | (o == 6) | | (o == 9)))
        System. out. println("박수-짝");
     else
        System. out. println ("박수-없음");
```



369 Game



```
public static void main(String[] args) throws IOException {
  Scanner keyboard = new Scanner(System. in);
  while (true) {
     System. out.print("0~99 사이의 정수를 입력 (0은 종료)>> ");
     int num = keyboard.nextInt();
     if (num == 0)
        break:
     if (num > 0 && num <= 99) {
        Game369 game = new Game369(num);
        game.game();
     }else {
        System. err. print("다시 입력하세요");
        System. in. read();
```

