1주차 자바 자료구조 문제 풀이

Q1

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| package JavaStudy;  import java.util.Scanner;  public class Pr1 {  static int max4(int a, int b, int c, int d) {  int max = a;  if (b > max)  max = b;  if (c > max)  max = c;  if (d > max)  max = d;  return max;  }    public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  int a, b, c, d;  System.***out***.println("네 정수의 최댓값을 구합니다.");  System.***out***.print("a의 값: ");  a = sc.nextInt();  System.***out***.print("b의 값: ");  b = sc.nextInt();  System.***out***.print("c의 값: ");  c = sc.nextInt();  System.***out***.print("d의 값: ");  d = sc.nextInt();  int max = *max4*(a, b, c, d);  System.***out***.println("최댓값은 " + max + "입니다.");  }  } |

Q2

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| package JavaStudy;  import java.util.Scanner;  public class Pr2 {  static int min3(int a, int b, int c) {  int min = a;  if(b<min)  b = min;  if(c<min)  c = min;  return min;    }  public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  int a, b, c;  System.***out***.println("세 정수의 최솟값을 구합니다.");  System.***out***.print("a의 값 : "); a = sc.nextInt();  System.***out***.print("b의 값 : "); b = sc.nextInt();  System.***out***.print("c의 값 : "); c = sc.nextInt();  int min = *min3*(a, b, c);  System.***out***.println("최솟값은 " + min + "입니다.");  }  } |

Q3

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| package JavaStudy;  import java.util.Scanner;  public class Pr3 {  static int min4(int a, int b, int c, int d) {  int min = a;  if(b<min)  b = min;  if(c<min)  c = min;  if(d<min)  d = min;  return min;  }  public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  int a, b, c, d;  System.***out***.println("네 정수의 최솟값을 구합니다.");  System.***out***.print("a의 값 : "); a = sc.nextInt();  System.***out***.print("b의 값 : "); b = sc.nextInt();  System.***out***.print("c의 값 : "); c = sc.nextInt();  System.***out***.print("d의 값 : "); d = sc.nextInt();  int min = *min4*(a, b, c, d);  System.***out***.println("최솟값은 " + min + "입니다.");  }  } |

Q4

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| package JavaStudy;  import java.util.Scanner;  public class Pr4 {  static int middle(int a, int b, int c) {  if(a>=b)  if(b>=c)  return b;  else if(a <=c)  return a;  else  return c;  else if(a>c)  return a;  else if (b>c)  return c;  else  return b;  }  public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  System.***out***.println("middle(3,2,1) = " + *middle*(3,2,1));  System.***out***.println("middle(3,2,2) = " + *middle*(3,2,2));  System.***out***.println("middle(3,1,2) = " + *middle*(3,1,2));  System.***out***.println("middle(3,2,3) = " + *middle*(3,2,3));  System.***out***.println("middle(2,1,3) = " + *middle*(2,1,3));  System.***out***.println("middle(3,3,2) = " + *middle*(3,3,2));  System.***out***.println("middle(3,3,3) = " + *middle*(3,3,3));  System.***out***.println("middle(2,2,3) = " + *middle*(2,2,3));  System.***out***.println("middle(2,3,1) = " + *middle*(2,3,1));  System.***out***.println("middle(2,3,2) = " + *middle*(2,3,2));  System.***out***.println("middle(1,3,2) = " + *middle*(1,3,2));  System.***out***.println("middle(2,3,3) = " + *middle*(2,3,3));  System.***out***.println("middle(1,2,3) = " + *middle*(1,2,3));  }  } |

Q5

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| package JavaStudy;  import java.util.Scanner;  public class Pr5 {  static int middle(int a, int b, int c) {  if ((b >= a && c <= a) || (b <= a && c >= a))  return a;  else if ((a > b && c < b) || (a < b && c > b))  return b;  return c;  }  public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  System.***out***.println("middle(3,2,1) = " + *middle*(3,2,1)); // a＞b＞c  System.***out***.println("middle(3,2,2) = " + *middle*(3,2,2)); // a＞b＝c  System.***out***.println("middle(3,1,2) = " + *middle*(3,1,2)); // a＞c＞b  System.***out***.println("middle(3,2,3) = " + *middle*(3,2,3)); // a＝c＞b  System.***out***.println("middle(2,1,3) = " + *middle*(2,1,3)); // c＞a＞b  System.***out***.println("middle(3,3,2) = " + *middle*(3,3,2)); // a＝b＞c  System.***out***.println("middle(3,3,3) = " + *middle*(3,3,3)); // a＝b＝c  System.***out***.println("middle(2,2,3) = " + *middle*(2,2,3)); // c＞a＝b  System.***out***.println("middle(2,3,1) = " + *middle*(2,3,1)); // b＞a＞c  System.***out***.println("middle(2,3,2) = " + *middle*(2,3,2)); // b＞a＝c  System.***out***.println("middle(1,3,2) = " + *middle*(1,3,2)); // b＞c＞a  System.***out***.println("middle(2,3,3) = " + *middle*(2,3,3)); // b＝c＞a  System.***out***.println("middle(1,2,3) = " + *middle*(1,2,3)); // c＞b＞a  }  } |

Q6

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| package JavaStudy;  import java.util.Scanner;  public class Pr6 {  public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  System.***out***.println("1에서 n까지의 총합을 구합니다.");  System.***out***.print("n의 값 : ");  int n = sc.nextInt();  int sum = 0;  int i = 1;  while (i <= n) {  sum += i;  i++;  }    System.***out***.println("1에서 " + n + "까지의 총합은 " + sum + "입니다.");  System.***out***.println("i의 값은 " + i + "(으)로 됩니다.");  }  } |

Q7

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| package JavaStudy;  import java.util.Scanner;  public class Pr7 {    public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  System.***out***.println("1에서 n까지의 총합을 구합니다.");  System.***out***.print("n의 값 : ");    int n = sc.nextInt();  int sum = (n + 1) \* (n / 2) + (n % 2 == 1 ? (n + 1) / 2 : 0);  System.***out***.println("1에서 " + n + "까지의 총합은 " + sum + "입니다.");  }  } |

Q8

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| package JavaStudy;  import java.util.Scanner;  public class Pr8 {  static int sumof(int a, int b) {  int min;  int max;  if(a>b) {  max = a; min = b;}  else {  max = b; min = a;}    int sum= 0;  for(int i = min;i<= max; i++ ) {  sum += i;  }  return sum;  }  public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  System.***out***.println("a와 b를 포함하여 그 사이에 있는 모든 정수의 총합을 구합니다.");  System.***out***.print("a의 값 : "); int a = sc.nextInt();  System.***out***.print("b의 값 : "); int b = sc.nextInt();  System.***out***.println("정수 a, b 사이의 모든 정수의 총합은 " + *sumof*(a, b) + "입니다.");  }  } |

Q9

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| package JavaStudy;  import java.util.Scanner;  public class Pr9 {    public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  System.***out***.print("a의 값: ");  int a = sc.nextInt();  int b;  while(true) {  System.***out***.print("b의 값: ");  b = sc.nextInt();  if(b>a)  break;  System.***out***.print("a보다 큰 값을 입력하세요");  }  System.***out***.println("b - a는 " + (b - a) + "입니다.");  }  } |

Q10

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| package JavaStudy;  import java.util.Scanner;  public class Pr10 {    public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  int a;  do {  System.***out***.print("양의 정수를 입력하세요: ");  a = sc.nextInt();  } while(a<=0);  int b = 0;  while (a >0) {  a/=10;  b++;  }  System.***out***.println("그 수는 " + b + "자리입니다.");  }  } |

Q11

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| package JavaStudy;  import java.util.Scanner;  public class Pr11 {    public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  System.***out***.print(" |");  for (int i = 1;i <= 9; i++)  System.***out***.printf("%3d", i);  System.***out***.println("\n---+---------------------------");    for (int i = 1; i <= 9; i++) {  System.***out***.printf("%2d |", i);  for (int j = 1; j <= 9; j++)  System.***out***.printf("%3d", i \* j);  System.***out***.println();  }  }  } |

Q13

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| package JavaStudy;  import java.util.Scanner;  public class Pr13 {    public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  System.***out***.println("정사각형을 출력합니다");  System.***out***.print("변의 길이: ");  int a = sc.nextInt();  for(int i =1;i<=a;i++) {  for(int j=1;j<=a;j++) {  System.***out***.print("\*");  }  System.***out***.println("");  }  }  } |

Q14

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| package JavaStudy;  import java.util.Scanner;  public class Pr14 {  static void triangleLB(int n) {  for (int i = 1; i <= n; i++) {  for (int j = 1; j <= i; j++)  System.***out***.print('\*');  System.***out***.println();  }  }    static void triangleLU(int n) {  for (int i = 1; i <= n; i++) {  for (int j = 1; j <= n-i+1; j++)  System.***out***.print('\*');  System.***out***.println();  }  }  static void triangleRU(int n) {  for (int i = 1; i <= n; i++) {  for (int j = 1; j <= i - 1; j++)  System.***out***.print(' ');  for (int j = 1; j <= n - i + 1; j++)  System.***out***.print('\*');  System.***out***.println();  }  }  static void triangleRB(int n) {  for (int i = 1; i <= n; i++) {  for (int j = 1; j <= n - i; j++)  System.***out***.print(' ');  for (int j = 1; j <= i; j++)  System.***out***.print('\*');  System.***out***.println();  }  }  public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);  System.***out***.print("단수는：");  int n = sc.nextInt();  System.***out***.println("왼쪽 아래 직각삼각형");  *triangleLB*(n);  System.***out***.println("왼쪽 위 직각삼각형");  *triangleLU*(n);  System.***out***.println("오른쪽 위 직각삼각형");  *triangleRU*(n);  System.***out***.println("오른쪽 아래 직각삼각형");  *triangleRB*(n);  }  } |

Q15

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| package JavaStudy;  import java.util.Scanner;  public class Pr15 {  static void spira(int n) {  for (int i = 1; i <= n; i++) {  for (int j = 1; j <= n - i; j++)  System.***out***.print(' ');  for (int j = 1; j <= (i-1)\*2+1; j++)  System.***out***.print('\*');  System.***out***.println();  }  }  public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);    System.***out***.print("단수는 : ");  int n = sc.nextInt();  *spira*(n);  }  } |

Q16

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| package JavaStudy;  import java.util.Scanner;  public class Pr16 {  static void npira(int n) {  for (int i = 1; i <= n; i++) {  for (int j = 1; j <= n - i; j++)  System.***out***.print(' ');  for (int j = 1; j <= (i-1)\*2+1; j++)  System.***out***.print(i % 10);  System.***out***.println();  }  }  public static void main(String[] args) {  Scanner sc = new Scanner(System.***in***);    System.***out***.print("단수는 : ");  int n = sc.nextInt();  *npira*(n);  }  } |