Java Homework (Chapter 5)

5.1

**import** java.util.Scanner;  
**public class** aSimpleCalculator {  
 **public static void** main(String[] Args){  
 System.***out***.print(**"Enter an integer, the input ends if it is 0: "**);  
 Scanner input = **new** Scanner(System.***in***);  
 **double** total= 0, average, num;  
 **int** pos= 0, neg = 0, count = 0;  
 **while** ((num = input.nextDouble()) != 0){  
 total += num;  
 count ++;  
 **if**(num < 0){  
 neg ++;  
 }  
 **else if**(num > 0){  
 pos ++;  
 }  
 }  
 average = total / count;  
 System.***out***.printf(  
 **"The number of positives is "** + pos + **"%n"** + **"The number of negatives is "** + neg + **"%n"** + **"The total is "** + total + **"%n"** + **"The average is "** + average  
 );  
 }  
}

5.8

**import** java.util.Scanner;  
**public class** findHighestScore {  
 **public static void** main(String[] Args){  
 Scanner input = **new** Scanner(System.***in***);  
 System.***out***.print(**"Enter the number of students: "**);  
 **int** num = input.nextInt();  
 String[] name = **new** String[num];  
 **double**[] scores = **new double**[num];  
 **int**[] ID = **new int**[num];  
 **double** highest = 0;**for**(**int** i = 0; i < num; i++){  
 ID[i] = i + 1;  
 System.***out***.print(**"Enter name for student"** + (i+1) + **": "**);  
 String temn;  
 name[i] = input.next();  
 System.***out***.print(**"Enter score for student"** + (i+1) + **": "**);  
 **double** tems;  
 scores[i] = input.nextDouble();  
 }  
**for**(**double** score : scores){  
 **if**(score > highest)  
 highest = score;  
 }System.***out***.println(**"The highest score and the student who get it are shown below: "**);  
 **for** (**int** i = 0; i < num; i++){  
 **if** (scores[i] == highest){  
 System.***out***.println(**"Student"** + ID[i] + **" "** + name[i] + **" "** + (**int**)scores[i]);  
 }  
 }  
  
 }  
}

5.14

**import** java.util.Scanner;  
**public class** computeGreatestCommonDivisor {  
 **public static void** main(String[] Args){  
 Scanner input = **new** Scanner(System.***in***);  
 System.***out***.print(**"Enter two positive integers: "**);  
 **int** n1 = input.nextInt(), n2 = input.nextInt();  
 **for** (**int** d = Math.*min*(n1,n2); d > 0; d--){  
 **if**(n1 % d == 0 && n2 % d == 0) {  
 System.***out***.print(**"The greatest common divisor of "** + n1 + **" and "** + n2 + **" is "** + d);  
 System.*exit*(1);  
 }  
 }  
 }  
}

5.16

**import** java.util.Scanner;  
**public class** findTheFactors {  
 **public static void** main(String[] Args){  
 System.***out***.print(**"Enter a integer: "**);  
 Scanner input = **new** Scanner(System.***in***);  
 **int** num = input.nextInt();  
 **while** (num != 0){  
 **for**(**int** i = 2; i < 10; i++){  
 **while** (num % i == 0){  
 **if**(num / i == 1){  
 System.***out***.print(i + **"."**);  
 System.*exit*(1);  
 }  
 System.***out***.print(i + **", "**);  
 num = num / i;  
 }  
 }  
 }  
 }  
}

5.25

**public class** ComputePIE {  
 **public static void** main(String[] Args){  
 **for**(**int** i = 10000; i <= 100000; i += 10000){  
 **double** result = *calculator*(i);  
 System.***out***.println(**"PIE for i = "** + i + **" is "** + result);  
 }  
 }  
 **private static double** calculator(**int** i){  
 **double** resulting = 0;  
 **int** n = 1;  
 **while** (n <= i){  
 resulting += *getI*(n);  
 n++;  
 }  
 resulting \*= 4;  
 **return** resulting;  
 }  
 **private static double** getI(**int** in){  
 **double** re;  
 re = (Math.*pow*(-1, in+1)) / (2 \* in - 1);  
 **return** re;  
 }  
}

5.26

**public class** computeE {  
 **public static void** main(String[] Args){  
 **for** (**int** i = 10000; i <= 100000; i += 10000){  
 **double** result = *calculator*(i);  
 System.***out***.println(**"The E for i = "** + i + **" is "** + result);  
 }  
 }  
 **private static double** calculator(**int** i){  
 **double** result = 1;  
 **int** n = 1;  
 **while** (n <= i){  
 result += *fac*(n);  
 n++;  
 }  
 **return** result;  
 }  
 **private static double** fac(**int** n){  
 **if** (n == 1)  
 **return** 1;  
 **double** f = 1;  
 **for**(**int** i = n; i >= 1; i--){  
 f \*= 1.0 / (i);  
 }  
 **return** f;  
 }  
}

5.41

**import** java.util.Scanner;  
**public class** countMaxNum {  
 **public static void** main(String[] Args){  
 System.***out***.print(**"Enter numbers: "**);  
 Scanner input = **new** Scanner(System.***in***);  
 String in = input.nextLine();  
 String[] arr = in.split(**" "**);  
 **int** max = 0, count = 0;  
 **for**(String ele: arr)  
 max = Math.*max*(max, Integer.*parseInt*(ele));  
 **for** (String ele: arr){  
 **if** (Integer.*parseInt*(ele) == max)  
 count++;  
 }  
 System.***out***.printf(**"The largest number is "** + max + **"%n + The occurrence count of the largest number is "** + count);  
 }  
}