CS 1301 – Intro To CS

Loops Exercises

1. **Write a program to continuously ask for a number (integer) until you enter a negative number. At the end, print the sum of all entered numbers (not including negative).**

**int total = 0;**

**int input = 0;**

**while( input >= 0){**

**System.out.println("Enter an integer or negative value to quit");**

**input = scanner.nextInt();**

**if(input > 0){**

**total = total + input;**

**}**

**}**

**System.out.println(total);**

1. **Replace <missing code> with your answer. Your code should sum all the numbers in the range [lowerBound, upperBound]. For example, if lowerBound = 3 and upperBound = 10. Your code should compute the following sum 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10**

**public** **static** **void** main(String[] args){

Scanner scanner = **new** Scanner(System.***in***);

**int** lowerBound = scanner.nextInt();

**int** upperBound = scanner.nextInt();

**int** sum = 0;

**for (int i = lowerBound; i <=upperBound; i++) {**

**sum = sum + i;**

**}**

System.***out***.println("sum = " + sum);

}

1. **Replace <missing value> and <missing code> with your answers. Your code should compute the factorial of n. For example, if n = 5, your code should compute the following 5 \* 4 \* 3 \* 2 \* 1**

**public** **static** **void** main(String[] args){

Scanner scanner = **new** Scanner(System.***in***);

**int** n = scanner.nextInt();

**int** factorial = **n;**

**for (int i = 1; i < n; i++) {**

**factorial = factorial \* i;**

**}**

System.***out***.println("factorial = " + factorial);

}

1. **Replace <missing code> with your answer. Your code should approximate the value of π (~3. 141592653589793). You can approximate pi using the following formula:**

ExerciseBasics_ComputePI.png

**For this problem, let n be the number of terms to add in the series. For example, if n = 5, your code should compute the following: 4 \* (1 – 1/3 + 1/5 – 1/7 + 1/9). If n = 3, your code should compute 4 \* (1 – 1/3 + 1/5)**

**public** **static** **void** main(String[] args){

Scanner scanner = **new** Scanner(System.***in***);

**int** n = scanner.nextInt();

**double** piApprox = **0;**

**double piApprox2 = 0;**

**for(double i = 1; i <= n; i=i+4){**

**piApprox = piApprox + (4\*(1/i));**

**System.out.println(piApprox);**

**}**

**for(double y = 3; y <= n; y=y+4){**

**piApprox2 = piApprox2 - (4\*(1/y));**

**System.out.println(piApprox2);**

**}**

**piApprox = piApprox + piApprox2;**

System.***out***.println("piApprox = " + piApprox);

1. **Write a program to ask for a name until the user enters “END”. Print the name each time. When you are done, print “I am done.”**

String n = "";

while(n !="END"){

System.out.println("Name?");

n = scanner.next();

1. **Replace <missing code> with your answer. Your code prints the numbers lowerBound to upperBound, 7 numbers per line. As you are printing, if the number you are about to print is a multiple of 3, you should print “UTEP” instead of the number. Else if the number if a multiple of 5, you should print “Miners” instead of the number. For example, if lowerBound = 1 and upperBound = 22. Your program should print the following:**

1 2 UTEP 4 Miners UTEP 7 8 UTEP Miners 11 UTEP 13 14 UTEP 16 17 UTEP 19 Miners UTEP

**public** **static** **void** main(String[] args){

Scanner scanner = **new** Scanner(System.***in***);

**int** lowerBound = scanner.nextInt();

**int** upperBound = scanner.nextInt();

for (int i = lowerBound; i <=upperBound; i++){

if ( i % 3 == 0){

System.out.print(" UTEP ");

} else if ( i % 5 == 0){

System.out.print(" Miners ");

} else if ( i % 7 == 0){

System.out.println(" " + i + " ");

} else {

System.out.print(" " + i + " " );

}

1. **Write a program that averages all grades on an exam. Grades will be given by the instructor inputting the grades on the console. Continue receiving grades until the instructor inputs a negative grade at which point you will compute the final letter grade (i.e., A-90+, B-80-89, etc.)**

**int g = 0;**

**int sum = 0;**

**int count = 0;**

**while(g >= 0){**

**System.out.println("Grade?");**

**g = scanner.nextInt();**

**if (g >= 0) {**

**sum = sum + g;**

**count++;}**

**}**

**double average = (sum / count);**

**System.out.print(average);**

**}**

1. **Replace <missing code> with your answer. Your code should extract each digit from n, in reverse order. For example, if n = 53412, the output your should produce is "2 1 4 3 5", with a space separating the digits.**

**Hints:**

You can use n % 10 to extract the last (least-significant) digit of n.

You can update n as follows: n = n / 10 to drop the last (least-significant) digit.

**public** **static** **void** main(String[] args){

Scanner scanner = **new** Scanner(System.***in***);

**int** n = scanner.nextInt();

**int rev = 0;**

**int num = scanner.nextInt();**

**while(num != 0){**

**rev = rev \*10 + num % 10;**

**num = num / 10;**

**}**

**System.out.print(rev);**

}