**Sample Final Exam (Chapters 12 to 17) Answers**

Each question worth 20% Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Write a recursive method (just a method—not a complete program) that returns true if the string it is passed is null or is made up exclusively of one or more occurrences of the letter 'A', and false, otherwise.

public static Boolean searchA(String s)

{

is (s.length() == 0)

return true;

if (s.charAt(0) = 'A' && searchA(s.substring(1))  
 return true;  
 else  
 return false;

}

1. What is displayed when the following method is passed 2:

public void f(int x)

{

System.out.println("A");

if (x >= 0)

{

System.out.println(x);

f(x-2);

System.out.println("x");

}

System.out.println("D");

}

A

2

A

0

A

D

x

D

x

D

1. Write a method rotate (just a method—not a complete program) that removes the first node on a linked list and places it at the end of the list, If the list is empty or has only one node, rotate has no effect on the list, Assume each node has a link field that points to the next node, The link field of the last node on the list contains null, Assume your method is in the MyListClass, Thus, it has direct access to the head field that points to the first node on the list.

public static void rotate()

{   
 Node p = head, save;

if ((p == null) || (p.link == null))

return;

while (p.link != null)

p = p.link;

p.link = head;

save = head;

head = head.link;

save.link = null;

}

1. Write a complete program in which you read from the file bert.txt, bert.txt contains integers, Your program should count the number of integers that bert.txt contains and write this count to the file ernie.txt, For example, if bert.txt contains five integers, your program should write

count = 5

to ernie.txt, Do NOT perform robust input—assume bert.txt contains only valid integers.

import java.util.\*;

import java.io.\*;

class Feq4

{

public static void main(String[] args) throws IOException

{

int count = 0;

Scanner infile = new Scanner(new File("bert.txt");

PrintWriter outfile = new PrintWriter("ernie.txt");

while (infile.hasNextInt())

{  
 infile.nextInt();  
 count++;  
 }

outfile.println("count = " + count);

fclose(outfile);

}

}

1. Write method that is passed an Object array whose length is 3. The first slot of the array points to an A object; the second slot points to a B object; the third slot points to a C object. The A, B, and C classes all have their own display method. Your method should call the display method for each of the three objects.

public static void arrayDisplay(Object[] a)

{

for (int i = 0; i < 3; i++)  
 {

if (a[i] instanceOf A)

((A)a[i]).display();

else

if (a[i] instanceOf B)

((B)a[i]).display();

else

if (a[i] instanceOf C)

((C)a[i]).display();

}

}