The Dragon Academy Computer Science G11 at The Dragon Academy Term 4 Test 1

May 29, 2019

Each of the following problems has the same weight toward the final mark on this test.

- 1. (KtiCa) Explain what are the implicit and explicit representations of a tree. Illustrate your answer with some code.
- 2. (KTica) What is the advantage of trees over linked lists?

#include<stdio.h>

- 3. (Ktica) List the four basic steps involved in developing an algorithm to solve a given problem.
- 4. (kTICa) The following code compares two strings and prints out the result. Refactor that code so that your program prints out all three comparisons. Note: The goal is to show you know what the recommended practice is when writing a program.

```
#include<string.h>
int main(){
    char* str1 = "azt)";
    char* str2 = "fab)";
    char* str3 = "Azt)";
    int cmp = strcmp(str1,str2) ;
    if ( cmp > 0 ) {
        printf("str1:%s_>_str2:%s_(cmp:%d)\n",str1,str2,cmp);
    }else if ( cmp < 0 ) {
        printf("str1:%s_<_str2:%s_(cmp:%d)\n",str1,str2,cmp);
    }else{
        printf("str1:%s_=_str2:%s_(cmp:%d)\n",str1,str2,cmp);
    }
    return 0;
}</pre>
```

5. (KtiCa) You insert the following list of numbers, from left to right, into a priority queue. At each balanced state of the queue after inserting one number, write down the corresponding array of its implicit representation. The list of numbers is 3, 37, 5, 40, 42, 80, 50, 40, 60, 70.