

Northern Michigan University (Marquette Co, MI)

CS222-01-23W: Data Structures (Andrew A. Poe)
Quiz 4

Name: _____
Friday 17 February 2023 10:00 A.M. EST

Time: 15 minutes.

Consider the following classes:

```
class LL {  
    private:  
        LLN *head;  
};
```

```
class LLN {  
    private:  
        string data;  
        LLN *next;  
};
```

Write code for the method

```
string LL::FirstShortWord () { ... }
```

This method returns the alphabetically first string in the linked whose length is five letters or less. For example, if the list were -->THE-->ZOO-->HAS-->AARDVARKS-->AND-->ALLIGATORS, the method would return "AND". AARDVARKS and ALLIGATORS precede AND, but those words are longer than five letters.

If no string qualifies, the method should return the empty string. Assume that getters and setters have already been written, but you must write all other helper methods. Do not use loops; use recursion only.

```
string LL::FirstShortWord () {  
  
    if (!head) return "";  
    return head->FirstShortWord ();  
}  
  
string LLN::FirstShortWord () {  
  
    string s = "";  
    if (next) s = next->FirstShortWord ();  
    if (data.length() > 5) return s; //Invalid data  
    if (s == "") return data; //valid data but invalid s  
    if (data < s) return data; //both s and data valid  
    return s;  
}
```