Lecture 19 Worksheet

Question 1

Without looking ahead in the lecture notes (don't peek!) complete the symbol table entries for the variables in the following program. The relevant kinds of entry are **static**, **this**, **argument** and **local**. Give each variable a number in the table in the order in which it appears.

```
class BankAccount {
   // Class variables
   static int nAccounts;
   static int bankCommission;
   // account properties
   field int id;
   field String owner;
   field int balance;

   method void transfer(int sum, BankAccount from, Date when) {
      var int i, j;   // Some local variables
      var Date due;   // Date is a user-defined type
      let balance = (balance + sum) - commission(sum * 5);
      // More code ...
   }
```

Name	Type	Kind	Number
nAccounts	int	static	0
bankCommission			
id			
owner			
balance			
sum			
from			
when			
i			
j			
due			

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Question 2

Symbol tables can be implemented by lots of different data structures.

1. What operations would you perform on a symbol table?

2. What information do you need to choose the data structure?

3. List four different data structures that you could use?

4. In C++ why might you choose to use the map class?

As a second part of the question. The slides mention that the symbol tables for each scope are in a linked list.

1. What dictates the length of this list?

2. How long is such a list likely to get?