Problem Set 10 - Nodes

Write the following programs such that each program should be written in a separate file named

`mainX`*n*`.cpp`

where *n* is the number of the program.

Programs:

1. Define a void function named `Attach()` whose header is

```
template <typename T>
void Attach(Node<T>* a, Node<T>* b)
```

   Given that *a* and *b* point to the head linked lists, if neither *a* nor *b* are empty lists, its attaches *b* to the end of *a*; otherwise, it does nothing.

2. Define a void function named `Print()` whose header is

```
template <typename T>
void Print(Node<T>* root)
```

   Given that *root* points to the head of a linked list, it displays the elements of the linked list as a list enclosed in square braces.

3. Define a long function named `Size()` whose header is

```
template <typename T>
long Size(Node<T>* root)
```

   Given that *root* points to the head of a linked list, it returns the size of the linked list.

4. Define a long function named `Count()` whose header is

```
template <typename T>
long Count(Node<T>* root, const T& value)
```

   Given that *root* points to the head of a linked list, it returns the number of instances of *value* in the linked list. It returns 0 If the linked list is empty.

5. Define a bool function named `Distinct()` whose header is

```
template <typename T>
bool Distinct(Node<T>* root)
```

   Given that *root* points to the head of a linked list, it returns true if all the values of the linked list are distinct or the list is empty; otherwise, it returns false.

6. Define an int function named `Maximum()` whose header is

```
int Maximum(Node<int>* root)
```

   Given that *root* points to the head of a linked list, it returns the maximum value in the list. However, it returns 0 if the list is empty.