```
Script started on 2022-12-08 14:44:24-06:00 [TERM="xterm" TTY="/dev/pts/8" COLUMNS=
j_pec2@ares:~/JPMainDir/CSC122/Port3/longLab$ pwd
/home/students/j_pec2/JPMainDir/CSC122/Port3/longLab
j_pec2@ares:~/JPMainDir/CSC122/Port3/longLab$ cat LongInfo.txt
Jack Pec

CSC122-001

Long Lab


Overall level 2.5


Desc:

It's the "Subscript: Not just for arrays anymore!" Labj_pec2@ares:~/JPMainDir/CSC12


LongOpDriver.cpp:
```

```
 1  #include <iostream>
 2  #include "long.h"
 3
 4  using namespace std;
 5
 6  int main(void)
 7  {
 8      longEnchanced j(1234);
 9      longEnchanced k(1234);
10      longEnchanced g;
11      //longEnchanced k;
12
13      long p = k + j + 100 - 5;
14      g = k + j;
15
16      cout << "Read in a long enchanced Object: ";
17      cin >> k;
18      cout << k << "\n";
19
20      cout << k[10] << "\n";
21      cout << k[1000] << "\n";
22      cout << k[10000] << "\n";
23
24      cout << k(10,1000) << "\n";
25      cout << k(1000,10) << "\n";
26      cout << k(1,10000) << "\n";
27      cout << k(1,1) << "\n";
28      cout << k(1,100) << "\n";
29      cout << k(10,100) << "\n";
30      cout << k(10000,10000) << "\n";
31
32
33      cout << "\nlong p = k + j + 100 - 5 = " << p << "\n";
34
35      cout << "\nj:" << j << "\n";
36
37      cout << j[10] << "\n";
38      cout << j[1000] << "\n";
39      cout << j[10000] << "\n";
40
41      cout << j(10,1000) << "\n";
42      cout << j(1000,10) << "\n";
43      cout << j(1,10000) << "\n";
44      cout << j(1,1) << "\n";
45      cout << j(1,100) << "\n";
46      cout << j(10,100) << "\n";
47      cout << j(10000,10000) << "\n";
48
49
50      cout << "\ng:" << g << "\n";
51
52      cout << g[10] << "\n";
53      cout << g[1000] << "\n";
54      cout << g[10000] << "\n";
55
56      cout << g(10,1000) << "\n";
57      cout << g(1000,10) << "\n";
58      cout << g(1,10000) << "\n";
59      cout << g(1,1) << "\n";
60      cout << g(1,100) << "\n";
61      cout << g(10,100) << "\n";
62      cout << g(10000,10000) << "\n";
63
64
65      return 0;
66  }
```

```
j_pec2@ares:~/JPMainDir/CSC122/Port3/longLab$ show-code Long.h

Cannot find file (Long.h).  Please check your spelling.
Please tell me the name(s) of the source file(s) to display.
j_pec2@ares:~/JPMainDir/CSC122/Port3/longLab$ show-code long.h


long.h:
```

```
 1  /*
 2
 3  Long Lib
 4
 5
 6  */
 7  #pragma once
 8
 9
10  //using namespace std;
```

```
11
12
13  class longEnchanced
14  {
15      long val;
16
17  public:
18      longEnchanced(long valIn = 0)
19          :
20          val(valIn)
21      {
22
23      }
24
25      //reads from left to right!
26      longEnchanced operator[](long whatPlace) const
27      {
28          return val / whatPlace % 10 > 0 ? val / whatPlace % 10 : -1;
29      }
30
31      longEnchanced operator() (long low, long high) //const
32      {
33
34          long c;
35
36          if( high > low)
37          {
38              c = val % (high*10) / low;
39          }
40          else
41          {
42              c = val % (low*10) / high;
43          }
44
45          if( c == 0)
46          {
47              c = -1;
48          }
49
50          return c;
51
52      }
53
54
55
56      operator long (void) const
57      {
58          return val;
59
60      }
61
62
63      long get_val(void) const
64      {
65
66          return val;
67      }
68
69
70      void set_val(long valIn)
71      {
72          val = valIn;
73      }
74
75
76      friend std::istream & operator>>(std::istream & in,
77                                       longEnchanced & r)
78      {
79          long a;
80          in >> a;
81          r.val = a;
82
83          return in;
84
85      }
86
87      friend std::ostream & operator<<(std::ostream & out,
88                                       const longEnchanced & r)
89      {
90          out << r.val;
91          return out;
92
93      }
94
95  };
j_pec2@ares:~/JPMainDir/CSC122/Port3/longLab$ show-coPP
LongOpDriver.cpp***


j_pec2@ares:~/JPMainDir/CSC122/Port3/longLab$ ./LongOpDriver.out
Read in a long enchanced Object: 125614
125614
1
5
2
561
561
25614
4
614
61
2

long p = k + j + 100 - 5 = 2563

j:1234
3
1
```

```
-1
123
123
1234
4
234
23
-1

g:2468
6
2
-1
246
246
2468
8
468
46
-1
j_pec2@ares:~/JPMainDir/CSC122/Port3/longLab$ ./LongOpDriver.out
Read in a long enchanced Object: 25478
25478
7
5
2
547
547
25478
8
478
47
2

long p = k + j + 100 - 5 = 2563

j:1234
3
1
-1
123
123
1234
4
234
23
-1

g:2468
6
2
-1
246
246
2468
8
468
46
-1
j_pec2@ares:~/JPMainDir/CSC122/Port3/longLab$ ./LongOpDriver.out
Read in a long enchanced Object: 34
34
3
-1
-1
3
3
34
4
34
3
-1

long p = k + j + 100 - 5 = 2563

j:1234
3
1
-1
123
123
1234
4
234
23
-1

g:2468
6
2
-1
246
246
2468
8
468
46
-1
j_pec2@ares:~/JPMainDir/CSC122/Port3/longLab$ exit
exit

Script done on 2022-12-08 14:46:20-06:00 [COMMAND_EXIT_CODE="0"]
Script started on 2022-12-08 14:47:18-06:00 [TERM="xterm" TTY="/dev/pts/8" COLUMNS=
j_pec2@ares:~/JPMainDir/CSC122/Port3/longLab$ cat LongSubScriptTPQ.txt
1. Which operators are friends and which are members?
 Do any have to be members?

The subscript [] and function object () operators are members.
```

```
Actually the insertion and extraction operators
are both friends and members of the class.
This is a new feature that c++ allows.

2. Which operators should be const?
What other methods might well be const?

The typcast long operator and the subscript [],
 the getter methods as well.

3. Does this class serve any useful purpose? Why/Why not?

I think it's very useful, we can get an individual number from
a certain number space from a long interger. or we can get a range
of numbers within the long int. This could be useful when storing
alots of information in the form of longs and then retrieving it
as needed (maybe its more effiecient to do this, but at the
cost of readability).

4. What use is a typecast operator? When would it be called?
   Why would you want your objects to be cast back to a simpler type?

The typecast operator is used to convert the returned object value
from our subscript [] and function object () operator overloads
into longs. It'll be called when the long object is being used with
other data types, like for example,

Its to use the long object seamlessly with other long data types,
for example, if j and k are our enchanced long objects,
we would want to use them in code for practial purposes like this:

long p = k + j + 100 - 5;

j_pec2@ares:~/JPMainDir/CSC122/Port3/longLab$ exit
exit

Script done on 2022-12-08 14:47:48-06:00 [COMMAND_EXIT_CODE="0"]
```