

COMP500 / ENSE501: Week 11 – Exercise:

EXERCISE NAME: *BSearch Integers*

Write a program that generates an array of 25 integers where each value is a random number between 1 and 100 inclusive.

After generating the 25 random numbers, sort the array using `qsort`. The program must then print the array elements, including their index, element address, and contents.

Finally, the program must ask the user for a search key. Using the search key, and the `bsearch` function, the program must check to see if the key is present in the array.

An example of program's output when the search key is found is as follows:

```
Sorted:
[ 0] at 002AF950 is 1
[ 1] at 002AF954 is 3
[ 2] at 002AF958 is 5
[ 3] at 002AF95C is 6
[ 4] at 002AF960 is 25
[ 5] at 002AF964 is 28
[ 6] at 002AF968 is 28
[ 7] at 002AF96C is 35
[ 8] at 002AF970 is 37
[ 9] at 002AF974 is 42
[10] at 002AF978 is 43
[11] at 002AF97C is 46
[12] at 002AF980 is 54
[13] at 002AF984 is 59
[14] at 002AF988 is 62
[15] at 002AF98C is 63
[16] at 002AF990 is 65
[17] at 002AF994 is 68
[18] at 002AF998 is 70
[19] at 002AF99C is 79
[20] at 002AF9A0 is 82
[21] at 002AF9A4 is 92
[22] at 002AF9A8 is 92
[23] at 002AF9AC is 93
[24] at 002AF9B0 is 96

Search key? 65

65 found at 002AF990
```

An example of program's output when the search key is not found is as follows:

```
Sorted:

[ 0] at 0030FEA4 is 1
[ 1] at 0030FEA8 is 3
[ 2] at 0030FEAC is 5
[ 3] at 0030FEB0 is 6
[ 4] at 0030FEB4 is 25
[ 5] at 0030FEB8 is 28
[ 6] at 0030FEB8 is 28
[ 7] at 0030FEC0 is 35
[ 8] at 0030FEC4 is 37
[ 9] at 0030FEC8 is 42
[10] at 0030FECC is 43
[11] at 0030FED0 is 46
[12] at 0030FED4 is 54
[13] at 0030FED8 is 59
[14] at 0030FEDC is 62
[15] at 0030FEE0 is 63
[16] at 0030FEE4 is 65
[17] at 0030FEE8 is 68
[18] at 0030FEEC is 70
[19] at 0030FEF0 is 79
[20] at 0030FEF4 is 82
[21] at 0030FEF8 is 92
[22] at 0030FEFC is 92
[23] at 0030FF00 is 93
[24] at 0030FF04 is 96

Search key? 72

72 not found!
```

Ensure the program output is exactly as described, and that the whitespace of your source code is well formatted.