COMP500 / ENSE501: Week 11 – Exercise:

EXERCISE NAME: *Binary Editor*

Write a program that reads in a file and displays its contents. The program's output is to display the address offset of the file in a left hand column, followed by eight bytes of the file per row of output. Each byte in the file is to be displayed as a hexadecimal value, as well as the ASCII equivalent in brackets.

Any byte value less than ASCII `' '` (non-printable characters) must not be printed with brackets.

The program must prompt the user for the name of the file to open. Once opened, it must present the display as described above. Next, the program must ask the user which byte to edit, followed by the new value for the byte.

Finally, the program must allow the user to type in a new filename that the edited file is to be saved as – and then save the edited data to file.

An example of the completed program's output when run with **`batman.bin`** is as follows:

```
Open file? batman.bin
0x00000000: 42 (B) 61 (a) 74 (t) 6D (m) 61 (a) 6E (n) 00     00
0x00000008: 00     00     00     00     00     00     00     00
0x00000010: 00     00     00     00     42 (B) 72 (r) 75 (u) 63 (c)
0x00000018: 65 (e) 20 ( ) 57 (W) 61 (a) 79 (y) 6E (n) 65 (e) 00
0x00000020: 00     00     00     00     00     00     00     00
Address of byte to edit (in hex)? 19
New value? $
Filename to save? newbatman.bin
Saving newbatman.bin
```

After saving **`newbatman.bin`**, it can then be opened again, and will display as follows:

```
Open file? newbatman.bin
0x00000000: 42 (B) 61 (a) 74 (t) 6D (m) 61 (a) 6E (n) 00     00
0x00000008: 00     00     00     00     00     00     00     00
0x00000010: 00     00     00     00     42 (B) 72 (r) 75 (u) 63 (c)
0x00000018: 65 (e) 24 ($) 57 (W) 61 (a) 79 (y) 6E (n) 65 (e) 00
0x00000020: 00     00     00     00     00     00     00     00
Address of byte to edit (in hex)?
```

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