Lab 9 Out-Lab Assignment
Paul Ofremu Jr.

Part 1

```
~/sys_programming
❯ ./getMostFreqChar
Enter filename: test.txt
The most frequent letter is 's'. It appeared 8 times.

~/sys_programming
❯
```

Part 2

```
~/sys_programming
❯ ./addressOfScalar
address of charvar = 0x7ffc2b2782d3
address of charvar - 1 = 0x7ffc2b2782d2
address of charvar + 1 = 0x7ffc2b2782d4
address of intvar = 0x7ffc2b2782d4
address of intvar - 1 = 0x7ffc2b2782d0
address of intvar + 1 = 0x7ffc2b2782d8

~/sys_programming
❯
```

Source Code:

```c
# include <stdio.h>

int main(void)
{
    // intialize a char variable, print its address and the next address
    char charvar = '\0';
    printf("address of charvar = %p\n", (void *)(&charvar));
    printf("address of charvar - 1 = %p\n", (void *)(&charvar - 1));
    printf("address of charvar + 1 = %p\n", (void *)(&charvar + 1));

    // intialize an int variable, print its address and the next address
    int intvar = 1;
    printf("address of intvar = %p\n", (void *)(&intvar));
    printf("address of intvar - 1 = %p\n", (void *)(&intvar - 1));
    printf("address of intvar + 1 = %p\n", (void *)(&intvar + 1));
}
```

The address after intvar is incremented by 4 bytes instead of 1bytes because that is the size of an int and is how much the next address is offset by.

Part 3

```
~/sys_programming
❯ ./addressOfArray
numbers = 0x7ffc65a655d0
numbers[0] = 0x7ffc65a655d0
numbers[1] = 0x7ffc65a655d4
numbers[2] = 0x7ffc65a655d8
numbers[3] = 0x7ffc65a655dc
numbers[4] = 0x7ffc65a655e0
sizeof(numbers) = 20

~/sys_programming
❯
```

2) Yes, the address of the array and the address of the first element are the same.

3) printf(“%d”, sizeof(numbers)/sizeof(numbers[0]));