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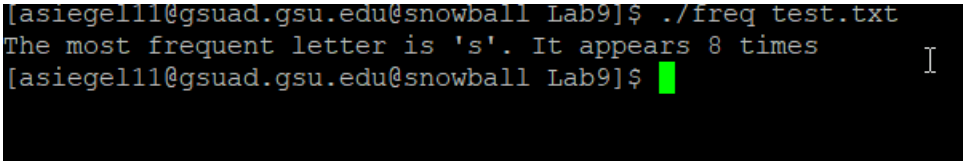
System-Level Programming

Lab 9

10/29/2021

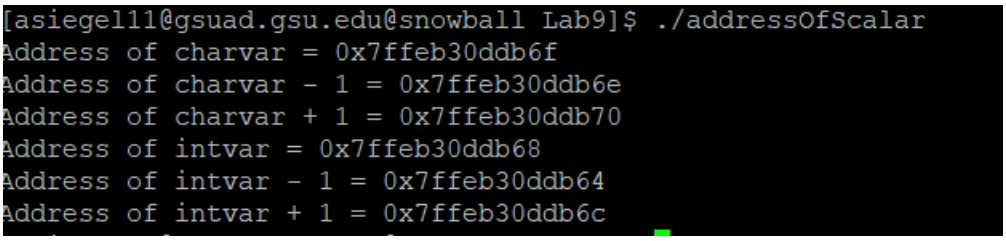
Part1:

1)



Part 2:

1)



2)

```
#include <stdio.h>

int main(){



        // initialize a char variable, print its address and the next address

        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));



        // initialize an int variable, print its address and the next address

        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));

}
```

3) intvar is incremented by 4 bytes because an int takes up 4 bytes of memory, so the next address is 4 bytes away.

Part 3:

1)

```
[asiegel11@gsuad.gsu.edu@snowball Lab9]$ ./addressOfArray
numbers = 0x7fff57874a00
numbers[0] = 0x7fff57874a00
numbers[1] = 0x7fff57874a04
numbers[2] = 0x7fff57874a08
numbers[3] = 0x7fff57874a0c
numbers[4] = 0x7fff57874a10
sizeof(numbers) = 20
[asiegel11@gsuad.gsu.edu@snowball Lab9]$
```

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

3) printf("lengthof(numbers) = &1u\n", sizeof(array)/sizeof(array[0]));