

Assignment2  
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Code

```
New Tab Split View
1 //Operating Systems Assignment 2
2 //Michael Vanderbilt and Matthew Chan
3 //Convert virtual address to physical address using
4 //page system
5 //Page is 4 kB or 4096 bytes. Divide virtual address
6 //by 4096 to determine page location and modulo to
7 //determine offset location on page.
8
9 #include<stdlib.h>
10 #include<iostream>
11
12 using namespace std;
13
14 void address_translation(unsigned int address) {
15     cout<<"The address "<<address<<" contains"<<"\n";
16     cout<<"page number = "<<address/4096<<"\n";
17     cout<<"offset = "<<address%4096<<"\n";
18 }
19
20
21 int main (int argc, char* argv[]) {
22     unsigned int address = stoi(argv[1]);
23     address_translation(address);
24     return 0;
25 }
"address.cpp" 26L, 646B written
```

Sample Run

```
~/KSU_OS_2022_WORKING/ASSIGNMENT2 g++ -o address address.cpp
~/KSU_OS_2022_WORKING/ASSIGNMENT2 ls
address address.cpp
~/KSU_OS_2022_WORKING/ASSIGNMENT2 ./address 19986
The address 19986 contains
page number = 4
offset = 3602
~/KSU_OS_2022_WORKING/ASSIGNMENT2
```

## Analysis

1. Program is to take the virtual address and convert to the actual physical address
2. Code takes the virtual address number
  - (a) Code uses the paging system ie page is 4096 bytes
  - (b) In the sample run 19986 bytes is divided by 4096 with an integer result of 4
  - (c) Thus the page number is 4
  - (d) The remainder of 19986 by 4096 provides the offset of direct location on the page