Lecture 16

arguments to main
strings

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Revision

- constant values – read only
- pass by constant value
- pass by reference
- pass by constant reference
- Two purposes of pointers
  - dynamic allocation
  - assignment and reassignment: switching between many dynamically created values/objects
- aliases (references)
- dereferencing pointers
- obtaining location addresses from variables
- character pointers as basic strings
- null pointers
- arguments to main
Character pointers

- `const char *p = "how do you do
";
- `cout << p;`
- `<< is defined on char*`
Type Casting

- converting a value of one type into a value of another

- int i;
- float f = (float) i;
- int *q = &i;
- void *p = (void *) q;
Arguments to main

int main (int argc, char *argv[]) {

}  

• argc is an integer: no. of parameters  
• argv is an array of char* strings  
  – it has argc no. of elements, i.e.,  
    • argv[0] ...to.. argv[argc-1]  
    • all are char* strings
Extracting typed values from `argv[]`

i.e. converting arguments..

```c
#include <cstdlib>

int main (int argc, char *argv[]) {
    int x = atoi (argv[1]);
    float f = atof (argv[2]);
}
```
Use of arguments to main

- passing command line parameters
- sort 5 1 5 4 3 11
  - g++ sort.cpp
  - mv a.out sort
  - test it for 5 numbers all given on command line
- cin is not required
  - but no prompting by cout
- sort datafile
  - data is in “datafile”, main can read the file and operate on the numbers in the file
String class

- defined in include library `<string>`
- unlike char*, it is object oriented
  - strings are instantiated from classes
  - they can accept message
    - i.e. member function invocation
      - string s1;
      - s1.insert(...);
Member Functions of class string

- **size**
  - present size of string

- **capacity**
  - allocated storage space, keeps changing

- **insert**
  - insert another string somewhere inside a string

- **replace**
  - replace a substring inside a string
Member Functions of class string

- compare
  - whether two strings are same
- find
  - find one substring in another