CS 101 Computer Programming and Utilization

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\n”;
- 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..

```
#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