ENUMERATIONS

Symbolic Integer Constants

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SYMBOLIC CONSTANTS

- `#define M_PI 3.141592653589793`
  - Any data type
  - One at a time
- `const double PI = 3.141592653589793;`
  - Any data type
  - One at a time
- `enum { MAX = 100 };`
  - One or more at a time
  - Only integers

BASIC ENUMERATIONS

- An enumeration is a set of named integers
- Provide mnemonic names for "magic" numbers
- `enum tag { element_list } variable_list;`
  - tag is optional; if used becomes a type specifier
  - variable_list is optional; if used creates one or more variables
  - element_list is a comma separated list of names
    - the first identifier is assigned the value 0
    - the value of one or more identifiers may be specified
    - unless specified, the value of an identifier is always 1 greater than the last

ENUM EXAMPLE 1

```
enum  commands
{
        QUIT,
        SEARCH,
        INPUT,
        IMPORT,
        HELP
};
```

```
commands command = get_command();

switch(command)
{     case QUIT       :     exit(0);
      case SEARCH :     search(person, index);
                          break;
      case INPUT      :     input();
                          break;
      case IMPORT  :     import(person, index);
                          break;
      case HELP       :     help();
                          break;
      default           :     cerr << "Unknown command\n";
                          break;
}
```

ENUM EXAMPLE 2

```
enum {    uread = 1,          // 0 0000 0001
          uwrite = 2,         // 0 0000 0010
          uexe = 4,           // 0 0000 0100
          gread = 8,          // 0 0000 1000
          gwrite = 16,        // 0 0001 0000
          gexe = 32,          // 0 0010 0000
          oread = 64,         // 0 0100 0000
          owrite = 128,       // 0 1000 0000
          oexe = 256          // 1 0000 0000
};
```

ENUM EXAMPLE 3

- enum { alpha = 3, beta, gamma };
  - alpha = 3, beta = 4, and gamma = 5
- enum { alpha = 3, beta = alpha + 2, gamma = alpha + beta };
  - alpha = 3, beta = 5, and gamma = 8