COMPSCI 210

Functions and Program structure

Program

- Program is a set of variable definitions and functions

- functions communicate via arguments

- a program may be spread over several source files, but not a function

Functions

- Break program into small sections
- Enable re-use of code
- Hide details of implementation
- Encapsulation of idea/operation

Functions

◆ Formal syntax

```
return-type function-name(argument declarations)
{
    declarations and statements
}
```

◆ `return-type`

- type of value returned by function
- if omitted, assumed to be `int`
- `return` returns the value of an expression
- all functions return a value, use `void` if you wish to do nothing with the return value

Functions

◆ Dummy function

```
dummy(){}
```

- does nothing and returns nothing
- good as a place holder during development

External objects

- **Functions**
  - always external
  - defining functions within a function is not allowed
- **Variables**
  - external variables are defined outside of any function
  - available to other functions
  - globally accessible

  internal variables are defined within functions

- **Functions can refer to external variables by name**

Scope

- A range within which a name has an meaning
- Scope of the name start from the point it is defined and continues until the end of the block that it is defined in
- External object
  - defined outside functions
  - continues until the end of file
- Internal object
  - continues until the end of function