

Week 10 Lecture 3

NWEN 241

Systems Programming

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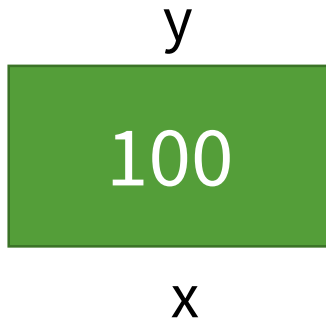
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Content

- Reference Variables
- Vectors
- File Handling in C++

Reference Variable

- Declares a named variable as a reference, that is, an alias to an already-existing object or function.
 - Once a reference is initialized with a variable, either the variable name or the reference name may be used to refer to the variable.
 - A variable can be declared as a reference by putting ‘&’ in the declaration.

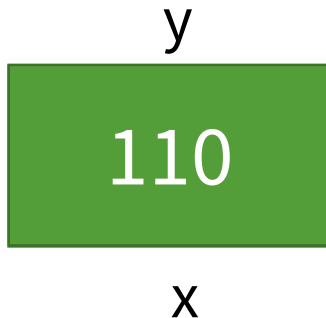


```
int x = 100;
```

```
int &y = x;
```

Reference Variable

- Declares a named variable as a reference, that is, an alias to an already-existing object or function.
 - Once a reference is initialized with a variable, either the variable name or the reference name may be used to refer to the variable.
 - A variable can be declared as a reference by putting ‘&’ in the declaration.



```
int x = 100;
```

```
int &y = x;
```

```
y = y + 10;
```

Recap: Types of Constructors

- **Default Constructors (Non – parameterized Constructor)**

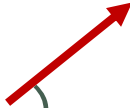
- Accepts no arguments
- `class_name()`

- **Parameterized constructor**

- Accepts arguments
- `class_name(parameters)`

- **Copy constructor**

- Copies another existing object
- `class_name (const class_name &)`



& - Reference operator, used to provide an alternative name for an existing variable

Difference between get and getline

- C - String

1. `istream& get (char* s, streamsize n);`

2. `istream& get (char* s, streamsize n, char delim);`

3. `istream& getline (char* s, streamsize n);`

4. `istream& getline (char* s, streamsize n, char delim);`

- Default `Delim` - `'\n'`
- Extracts characters until `delim` is read or `n-1` characters have been read.
- **Appends** null character (`'\0'`) to `s`.
- **Keeps** the `delim` char in the input stream

- Same as `get()`, but **extracts and discards** `delim` char from the input stream

Example

```
int main ()
{
    char c[20];
    char c1;

    cin.get(c,20);
    cin.get(c1);

    cout<<c<<" "<<c1;
}
```

- `get(c, 20)` Keeps '\n' in the input stream.
- Reads '\n' into `c1`

```
int main ()
{
    char c[20];
    char c1;

    cin.getline(c,20);
    cin.get(c1);

    cout<<c<<" "<<c1;
}
```

- `getline(c,20)` Discards '\n' from the input stream.

Unformatted IO

- String class

1. `istream& getline (istream& is, string& s);`

Input stream

String object

2. `istream& getline (istream& is, string& s, char delim);`

User specified delimiter

- Default `Delim` in (1) is `'\n'`
- Extracts characters until the extracted character is `delim` character is found.
- **Discards** the `delim` char

Example

```
int main ()
{
    string s;
    ofstream fOut;
    fOut.open("Data.txt");

    getline(cin,s);

    fOut<<s;
    fOut.close();
    return;
}
```

Input

Welcome !!

Data.txt

Welcome !!

Vector and Files

- Demo