

More C++

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Outline

- Project 1 Review
- Alignment and Padding
- Finish C++ Introduction

PROJECT 1 REVIEW

Sample Solution

- <In class explanation of sample code>
 - Solution will NOT be posted

Alignment and padding

- Structures and classes are padded so that attributes are aligned on a 4-byte boundary
 - A char followed by an int would require 2 memory accesses to read the entire integer if there was no padding

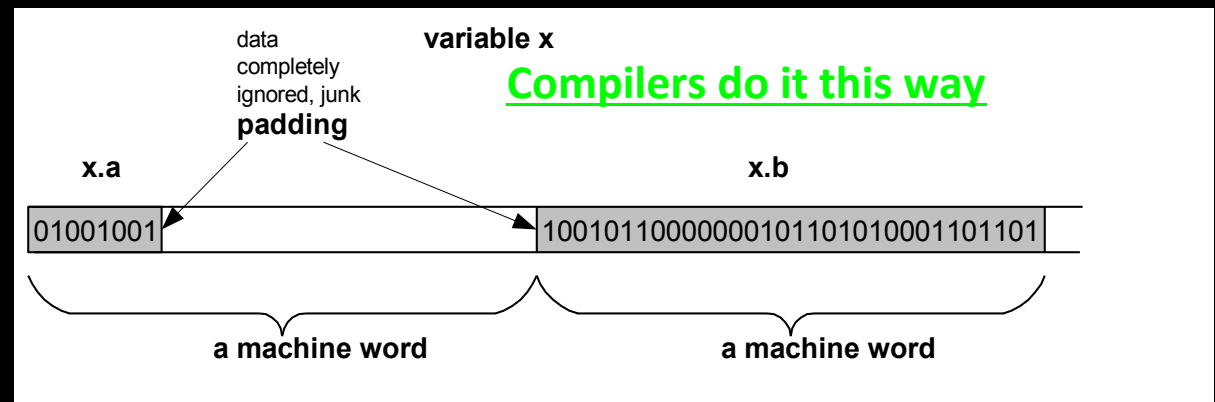
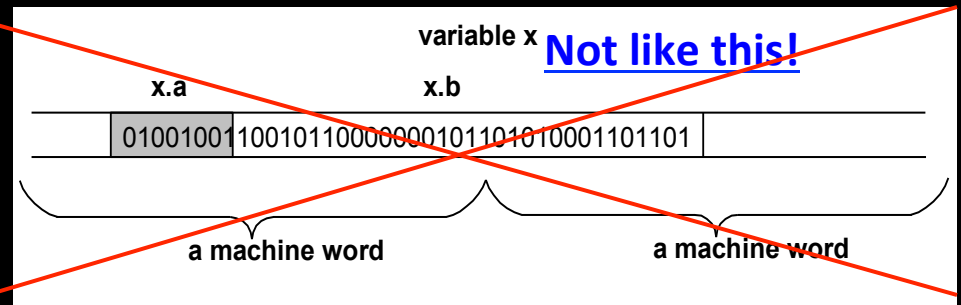
Placement & padding – word

- Compiler places data at word boundaries
 - e.g., word = 4 bytes

- Imagine:

```
struct {  
    char a;  
    int b;  
} x;
```

- Classes too



C++ INTRODUCTION CONTINUED

Data Hiding

- Declaring member (instance) variables as private, why?
 - Assists in separation of implementation and interface
 - Allows for input validation and state consistency

Compilation differences

- Save C++ files with `.cpp` extension (many people also use `.cc`)
- Use `clang++` rather than `clang` (really important otherwise odd errors)
 - All the arguments (for our purposes) are the same
 - Use `g++` rather than `gcc` if you use that compiler
 - You can compile any C code with a C++ compiler (it's backwards compatible)

New Types

- `bool`
- `std::string` (must `#include <string>`)

For Monday

- Study for exam (see midterm from last quarter)
- All material from lecture, labs, example code, projects up to C++ (not included) will be on the exam
- Simple C++ I/O lab will be on Monday