Strategies

- Read the compiler output
- Ask for help *effectively*
- Read the documentation
- The scientific method
- Try the debugger
Read the compiler output

Errors are there to help you.

/Users/tov/school/eecs211/web/lec/14figuring/
src/ui.cpp:76:9: error: no viable conversion
from 'ge211::geometry::Position' (aka
'Basic_position<int>') to 'int'
    int col_no = screen_to_board_(screen_posn);
Don’t ignore warnings!

They’re there to help you to. This indicates a bug:

/Users/tov/school/eecs211/web/lec/14figuring/src/model.cpp:21:1: warning: control may reach end of non-void function [-Wreturn-type]
} ^
Don’t ignore warnings!

They’re there to help you to. This indicates a bug:

```
/Users/tov/school/eecs211/web/lec/14figuring/src/model.cpp:21:1: warning: control may reach end of non-void function [-Wreturn-type]
} ^
```

So does this:

```
    screen_to_board_(screen_pos).x;
```

~~~~~~~~~~~~~~~~~~~~~~~~~~~~^
Ineffective help requests

• “It doesn’t work.”

• “I get an error.”
Ineffective help requests

- “It doesn’t work.” — What did you expect and what happened?
- “I get an error.” — What did the error say? Do you understand it?
Effective help requests…

…are similar to effective bug reports:

- What did you do?
- What did you expect to happen?
- What happened instead?
- What else have you tried?
- Can you construct a minimal example? Is it reproducible?
- What’s the context? (OS, software versions, etc.)
Read the docs

Two main places:

- GE211 documentation: https://tov.github.io/ge211/
Let’s look up some stuff

- std::string
- std::is_permutation
- ge211::Rectangle
- ge211::Text_sprite::reconfigure
The debugger

The debugger is the bug button is CLion. It lets you step through your program, print variables, set breakpoints, etc. Let’s try it.
Next: the Model–View–Controller pattern —