上海交通大學 SHANGHAI JIAO TONG UNIVERSITY

# Course organization

- Course introduction ( Week 1)
  - Code editor: Emacs
- Part I: Introduction to C programming language (Week 1 - 12)
  - Chapter 1: Overall Introduction (Week 1-4)
    - C
    - Unix/Linux
  - Chapter 2: Types, operators and expressions (Week 4)
  - Chapter 3: Control flow (Week 5, 6)
  - Chapter 4: Functions and program structure (Week 6- 7)
  - Chapter 5: Pointers and arrays (Week 8-9)
  - Chapter 6: Structures (Week 10 - 11)
  - Chapter 7: Input and Output (Week 11-12)
- Part II: **Skills others than programming languages (Week 12- 14)**
  - Debugging tools（Week 12-13）
  - Keeping projects documented and manageable （Week 14）
  - Source code managing （Week 14）
- Part III: Reports from the battle field (student forum) (Week 15 – 16)

# Chapter 8 GDB in Emacs

Chaochun Wei
Shanghai Jiao Tong University
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# Contents

# 8.1 Start gdb

1. Compile your .c file with the –g option
2. Start emacs
3. Open the .c file
4. Split the window into 2 halves
   - *C-x 2*
5. Start gdb
   - *M-x gdb*
6. Exit
   - *quit*
   - *C-c*

# 8.2 Breakpoints

- Set a breakpoint
  - `C-x [space]`
  - *`b functionName`*
    - *`b main`*
  - *`b line-number`*
  - *`b file:function`*
  - *`b file:line-number`*
  - *`b +offset`*
  - *`b -offset`*
- Disable enable breakpoint n
  - *`disable [n]`*
  - *`enable [n]`*
- Delete breakpoints
  - Delete breakpoint n
    - *`d [n]`*
  - Delete all breakpoints
    - *`d`*

# 8.3 running your program in gdb

- Type “run” or “r”

```
run
```

- Command line arguments can be added after run

```
run file1 file2
```

# 8.4 Examining data

- Checking variables: “print” or “p” ; “display” or “disp”

```
p a
disp a
```

- Execute any function f with argument a and print its  return value

```
p f(a)
```

# 8.5 Tracing

- Next line

  *n [count]*

- Step to next line. Will step into a function

  *s [count]*

- Continue: continue running

  *c [count]*

- Conditional break points: break if expr is nonzero

  *break … if expr*

- Watch points: set a watch point for expression expr

  *watch expr*

# References

- For more detailed refcard,  please check
  - http://www.cs.berkeley.edu/~mavam/teaching/cs161-sp11/gdb-refcard.pdf