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# ECE/CS 252

# Intro to Computer Engineering

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PennSim Workshop



# Text Editor

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- You can use any **text editor you prefer** but **not** ~~Notepad~~ (windows) and ~~Note~~ (mac)
- Good options:
  - Sublime:
    - <https://www.sublimetext.com/3>
  - Notepad++
    - <https://notepad-plus-plus.org/downloads/>



# Sublime

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- Download: <https://www.sublimetext.com/3>
- After you installed the program open it and press  
Win/Linux: ctrl+shift+p  
Mac: cmd+shift+p
- First time you do this, it installs package control, you need to press the same combination again.
- Type “install” and click on “package Control: Install Package”
- Search for LC3 and install the LC3 Assembly package
- Sublime will then highlight the instructions, registers, comments, etc.



# Sublime

```
1 ; This is a program used in the ECE/CS 252
2 ; PennSim tutorial.
3 ;
4 ; YOU SHOULD NOT COMMENT YOUR CODE LIKE THIS!
5 ;
6 ; In this case, the comments are not intended
7 ; to be useful because we want you to run the
8 ; code and answer questions about what happens
9 ; in PennSim rather than focus on figuring out
10 ; what the code does.
11
12 .ORIG x0200
13 START
14     NOT    R2, R0      ; R2 <- NOT R0
15     NOT    R3, R1      ; R3 <- NOT R1
16     AND    R3, R0, R3  ; R3 <- R0 AND R3
17     AND    R2, R1, R2  ; R2 <- R1 AND R2
18     NOT    R2, R2      ; R2 <- NOT R2
19     NOT    R3, R3      ; R3 <- NOT R3
20     AND    R2, R2, R3  ; R2 <- R2 AND R3
21     NOT    R2, R2      ; R2 <- NOT R2
22
23     ;BR START          ; repeat forever
24
25     .END
26
```



# Notepad++

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- Download: <https://notepad-plus-plus.org/downloads/>
- After you installed the program
- Save LC-3\_Syntax\_Highlight.xml downloaded from here: <https://canvas.wisc.edu/courses/426016/pages/pennsim-files-and-information> to your PennSim directory.
- In Notepad++, Language > Define your language, then "Import..." and select this file. Close Notepad++, reopen it, and choose LC-3 in the Languages menu (near the bottom)
- Notepad++ will then highlight the instructions, registers, comments, etc.



# Notepad++

```
31     }while(sSel!="A" && sSel!="B" && sSel!="C");
32
33     return sSel;
34
35 }
36
37 int getnum(string s)
38 {
39     srand(time(0));
40
41     if (s == "A")
42         return (rand()%10 + 1);
43     else if (s == "B")
44         return (rand()%100 + 1);
45     else if (s == "C")
46         return (rand()%1000 + 1);
47 }
48
49 int startgame(int iComputerNum)
50 {
51     int iUserNum;
52     int iGuess = 0;
53     bool bFail;
54 }
```

Image from internet as instructor does not have windows machine, the code in the image is not assembly



# PennSim

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- Open this page and follow the instructions:  
<https://canvas.wisc.edu/courses/426016/pages/pennsim-files-and-information>
- If you have a mac make sure to read the Mac user bullet point (copied in next slide)



# Mac OS users

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Saving and running the `pennsim.jar` and `tutorial.asm` files on a directory such as Downloads or Desktop that is set to be backed up automatically on iCloud causes problems ("Assembly error: Couldn't read file), as Pennsim has a problem working with online storage solutions. To resolve this issue, simply use finder to navigate to a location under your user (Example: `/Users/NAME/`) and make a subdirectory under your profile and move the downloaded files there and then run them.