CS50 Supersection

Welcome to CS50!
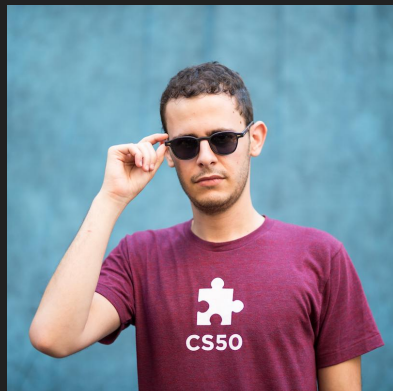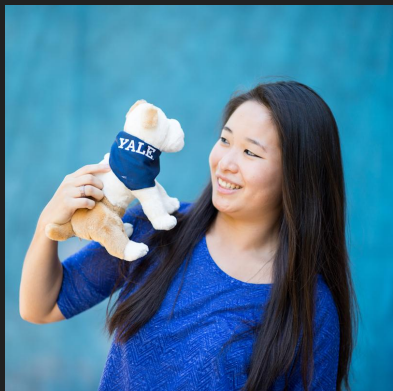Please make a name tag with blank paper.

Agenda

- Norms (~5 minutes)
- Strategies for Success (~5 minutes)
- Scratch to C (~40 minutes)
- Problem-Solving Process (~5 minutes)
- Rock, Paper, Scissors (~30 minutes)
- Feedback (~5 minutes)

Norms

- Introduce yourself to others
- Be prepared to be "warm called"
- Ask questions whenever you have them
- Low tech, high engagement

Strategies for Success

- Watch the week's lecture video before attending section
  - It's dense
  - Break it up into more than one sitting
- Look through the week's problem set before attending section
- Attend section!
- Begin working on the problem set early in the week
  - Take advantage of Wednesday and Thursday night Office Hours
  - Learning programming takes (a lot of) time
- Be smart about your problem-solving process
- Read the book

Scratch to C

Starting Your Program


```
int main(void)

{

}
```

Printing Something


```
printf("Hello!");

printf("Hello!\n");
```

Declaring Variables and Assigning Values


```
int variable;

variable = 0;
```

Incrementing Variables


```
variable = variable + 1;

variable += 1;

variable++;
```

Data Types

Type	Use Case
int	Integer variables, counters
char	Letters, other single characters
float	Decimal values, monetary representation
double	Decimal values requiring more precision
long long	Integers that can get very large (>4 billion)
string	Words, phrases, paragraphs
bool	True or false (equivalently, 1 or 0)

Comparing Values

(___ < ___)

(___ == ___)

(___ > ___)

Boolean Expressions

(___ && ___)

(___ || ___)

(!___)

Loops


```
while (true)

{

}

while (condition)

{

}
```

Loops


```
for (int i = 0; i < 10; i++)

{

}
```

Decision-Making


```
if (condition)

{

}

else

{

}
```

Ending Your Program


```
return 0;
```

Problem-Solving Process

Problem-Solving Process

- Whiteboard
  - Understand the problem statement and ask questions about it
  - Provide sample inputs and outputs (useful for testing later)
  - Draw a diagram or flowchart
- Pseudocode
  - English-like descriptions of programming-like actions
  - Often becomes your comments
- Code
  - Turn each line of pseudocode into the corresponding line of code
  - Go chunk by chunk, testing often

Problem-Solving Process

- Don't forget to **save** you code, then **make** it, then **run** it
  - Else you'll be confused about why your changes don't seem to be having an effect!
- When in doubt about what something does, try it and see
- When dealing with compilation errors, start with the first one
  - The first error often has cascading consequences
- Use "printf" statements, the CS50 IDE's debugger, and gdb to troubleshoot your code
  - `debug50 ./mario`

Rock, Paper, Scissors

Write a program that takes a move from two players (in the form of a character that's hopefully 'r,' 'p,' or 's') and then prints out the results of the game. The program should then immediately exit.

- Whiteboard
- Pseudocode
- Code

Commands

- `mkdir`
  - "**Ma**ke **dir**ectory"
- `ls`
  - "**Lis**t"
- `cd pset1/`
- `cd ..`
  - "**C**hange **d**irectory"
- `rm`
  - "**Rem**ove"

http://sayat.me/cs50