

YEAH!

Game Of Life

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Adapted from SLs Rishi Bedi & Audrey Ho

Game of Life

		X		
		X		
		X		



	X	X	X	

How Do We Start?

1. **Download:** QT Creator & Project + Print “Hello World”
2. **File Input:** Prompt for Filename, Open File, Print Contents to Console
3. **Grid:** Store Grid Described by File & Print Grid
4. **Simulation:** Update Generation of Cells
5. **Finishing Touches:** Add Main Menu & MyColony.txt

File Input: File Format

5 ← *number of rows tall*

5 ← *number of columns wide*

--X-- ← *- is a dead cell*

--X-- ← *X is a living cell*

--X--

		X		
		X		
		X		

File Input: Processing the File

```
string fileName = getLine("File name?");
```

```
ifstream input;
```

```
input.open(fileName.c_str());
```

```
if (input.fail()){ // prompt again }
```

OR

```
promptUserForFile(input, "File name?");
```

To read a line from a file:

```
getline(ifstream& stream, string& line)
```

Grid: Storing & Displaying Data

- Get Row Num & Column Num from File
- Extract Data from File & Store in Data Structure
- Grid<char>? Grid<int>? Grid<bool>?
- Print Out Individual Rows & Columns

Simulation: Rules of the Game

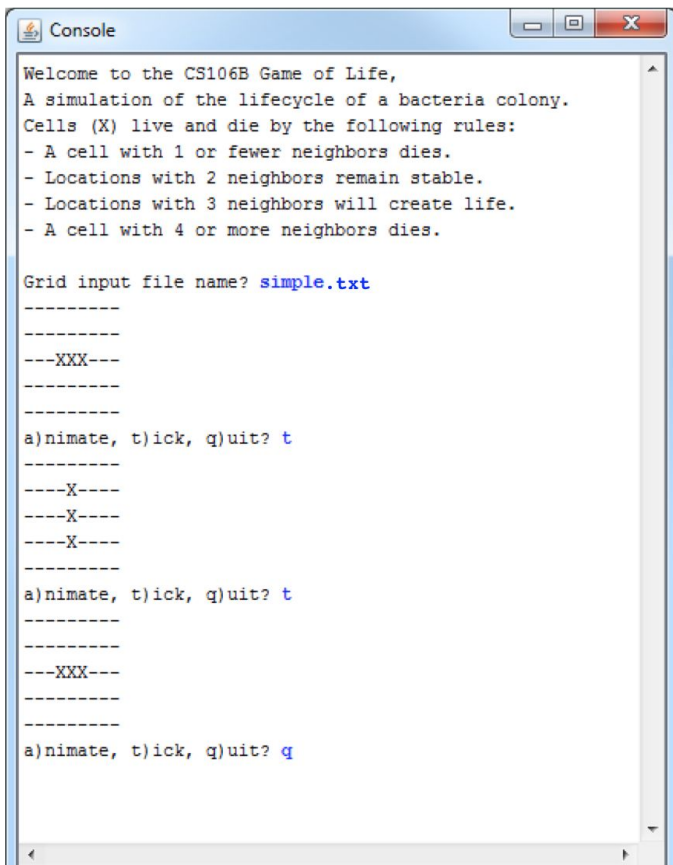
≤ 1 Neighbors : Cell Dies

2 Neighbors : Remains The Same

3 Neighbors : Cell Born!

4 Neighbors : Cell Dies

Final Touches: Menu & MyColony.txt



```
Console
Welcome to the CS106B Game of Life,
A simulation of the lifecycle of a bacteria colony.
Cells (X) live and die by the following rules:
- A cell with 1 or fewer neighbors dies.
- Locations with 2 neighbors remain stable.
- Locations with 3 neighbors will create life.
- A cell with 4 or more neighbors dies.

Grid input file name? simple.txt
-----
---XXX---
-----
a)nimate, t)ick, q)uit? t
-----
---X---
---X---
---X---
-----
a)nimate, t)ick, q)uit? t
-----
---XXX---
-----
a)nimate, t)ick, q)uit? q
```

Menu

- Re-prompting
- Animation
- Ticking
- Check Handout for More Menu Info...

MyColony.txt

Have fun with it!!

Meant to be a relaxed, creative end to the assignment!

Don't forget to submit it!!

Helpful Stuff

Pass by reference or pass by value?

Useful methods:

```
int stringToInteger(string s)
```

```
string integerToString(int n)
```

```
myGrid.inBounds(row, col)
```

```
getInteger("prompt")
```

Useful Resources

CS106B

Lectures ▾

Handouts ▾

Assignments ▾

Tools ▾

🍏 Overview



CS106B: Programming Abstractions

Winter 2016

Monday, Wednesday, Friday 11:30am to 12:30pm in [Dinklespiel Auditorium](#)

RESOURCES

🍏 [Course Overview](#)

🔗 [Submitter](#)

📌 [Piazza](#)

📺 [OT Creator](#)

📖 [Stanford C++ Lib](#)

📅 [Past Quarters](#)

📅 [Help Hours](#)

NEWSFEED

Sign Up for Section

3 days ago

Section sign up are open! To sign up go to the [section signup](#) website. Section sign up closes Sunday at 5pm. We are happy to announce that we have 51 section leaders who are leading CS106B sections!

Life Assignment Out

4 days ago

Assignment 1, [Life](#) goes out today in class. In this program you will implement Conways Game of Life, an elegant cartoon model of cell life that has inspired an entire field of thinking on complex structures that can arise from simple rules.



ASSIGNMENTS

[Assignment 1: Life](#)

EXAMS

Midterm

📅 Tuesday, Feb 9th

🕒 7-9pm

Final

📅 Monday, March 14th

Questions?