Welcome to CompSci 201

- Introduce yourself to your neighbor
- Go to the class webpage
  - [http://www.cs.duke.edu/courses/compsci201/spring14/wordpress/](http://www.cs.duke.edu/courses/compsci201/spring14/wordpress/)
  - Start looking around
- Sign up on Piazza!

Welcome

- Prof. Peck
- Graduate TAs
  - Nadi
  - Nat
- An army of UTAs
After This Class

• You will know
  • Is CompSci 201 right for me?
  • What material is covered in Compsci201
  • The course logistics

• You will be ready
  • To start coding in Java!

What is Computer Science?

• “The programmer, like the poet, works only slightly removed from pure thought-stuff. He builds his castles in the air, from air, creating by exertion of the imagination. Few media of creation are so flexible, so easy to polish and rework, so readily capable of realizing grand conceptual structures.”

Frederick P. Brooks Jr.
Duke class of 1953
Course Material

- Toolkit – for getting a computer to solve problems
  - Efficient and elegant methods
    - Data structures and algorithms
  - Understanding tradeoffs
    - How long will it take to run this algorithm?
    - Why should I use one data structure over another?

Course Material

- Data Structures and Algorithms

  - Data Structures - the organization of data and its storage allocations in a computer

  - Algorithms - A process or set of rules to be followed in calculations or other problem-solving operations
Course Material

• Analysis, use, and design of data structures and algorithms using an object-oriented language (Java) to solve computational problems.
• Emphasis on abstraction including interfaces and abstract data types for lists, trees, sets, tables/maps, and graphs.
• Implementation and evaluation of programming techniques including recursion. Intuitive and rigorous analysis of algorithms.

Course Material

• Toolkit is applicable for any programming language
  • Java – you do NOT need to know Java
  • You DO need a semester of programming
  • You DO need to be willing to look up Java syntax

How comfortable are you with Java?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I have written [28]</td>
<td>47</td>
<td>39%</td>
</tr>
<tr>
<td>I've seen it [30]</td>
<td>30</td>
<td>25%</td>
</tr>
<tr>
<td>I've written a couple of minor programs. [28]</td>
<td>28</td>
<td>23%</td>
</tr>
<tr>
<td>I am pretty comfortable with Java. [17]</td>
<td>17</td>
<td>14%</td>
</tr>
<tr>
<td>Not at all. [47]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Course Material

- Is CompSci 201 right for me?
  - Have you taken any of these, or the equivalent?
    - CompSci 101
    - EGR 103
    - AP CompSci
  - If you are unsure, ask me after class!

With what programming language are you most comfortable?

<table>
<thead>
<tr>
<th>Language</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Java</td>
<td>33%</td>
</tr>
<tr>
<td>Python</td>
<td>33%</td>
</tr>
<tr>
<td>Matlab</td>
<td>36%</td>
</tr>
<tr>
<td>C/C++</td>
<td>6%</td>
</tr>
<tr>
<td>Fortran</td>
<td>6%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
</tr>
</tbody>
</table>

Why are you taking CompSci 201?

- I'm thinking about becoming a major. 59 48%
- I am taking this class again? 1 1%
- My friend told me to take this class because it is awesome. 6 5%
- I have to take this class for my major/minor and I'm excited about it. 40 33%
- I have to take this class for my major/minor and I'm NOT excited about it. 0 0%
- Other 16 13%

How comfortable are you with Object Oriented Programming (OOP)?

- I don't understand the question and I won't respond to it. 37 30%
- I have heard of OOP, but that is about it. 40 33%
- I understand the basics. 39 32%
- I have created more objects than I can count. 6 5%
Programming Languages

C++ “Hello World”

```cpp
#include <iostream.h>
main()
{ 
  cout << "Hello World! ";
} 
return 0
```

Java “Hello World”

```java
class HelloWorldApp 
{ 
  public static void main(String[] args) 
  { 
    System.out.println("Hello World!");
  } }```

1/8/14

1/7/14
Programming Languages

C++ "Hello World"
```cpp
#include <iostream.h>
main()
{  
        cout << "Hello World! ";
} 
return 0;
```

Java "Hello World"
```java
class HelloWorldApp  
{  
        public static void main(String[] args)
        {  
                System.out.println("Hello world!");
        }
}
```

Python
```python
print "Hello world"
```

Matlab
disp('Hello World');

Code

```java
class Example{

        public static void main(String[] args){

                System.out.println("Hello 201");

        }
}
```

Logistics

• See the course webpage for full details!
  
  • [http://www.cs.duke.edu/courses/compsci201/spring14/wordpress/](http://www.cs.duke.edu/courses/compsci201/spring14/wordpress/)

Course Logistics

• Programming assignments – 35%
• APTs – 10%
• Recitation – 10%
• Midterms – 25%
  • February 12
  • March 26
• Final – 20%
  • April 28 (2:00pm-5:00pm)
Course Logistics

• Programming assignments – 35%
  • Start early
  • Due at 11:59 pm on due date
  • Late submissions are late
    • 1 minute late is late

Course Logistics

• Late policy
  • You have assignment extensions
    • We will keep track of these
    • Enables submission within 72 hrs. of due date without penalty
  • If you run out of assignment extensions
    • Each day is 10% off assignment grade
    • No assignments accepted after one week
Course Logistics

• Incorrect submission
  • You may use an assignment extension to resubmit for full credit
  • We will contact you for a resubmission if your assignment is incorrect

Course Logistics

• Grading Policy
  • Grades will be posted in Sakai
  • An email and announcement will be made through Sakai when grades are posted
  • Grading corrections MUST be reported within 3 days of grade posting
  • Report requests through the “Grade corrections” form
    • Email correction requests will NOT be accepted
Course Logistics

- Recitation
  - Weekly review and practice of course material
  - There is an assignment due this Friday!!!!
  - Fridays
    - Attendance required
      - No attendance this week
      - 2 excused absences
    - Work due BEFORE following recitation

Course Logistics

- Honor Code
  - Don’t cheat
  - Write your own code
  - Acknowledge help
  - Don’t cheat
  - Always submit a README
Important dates

- Exam 1 – February 12
- Exam 2 – March 26
- Final – April 28

Course Logistics

- APTs – 10%
  - Algorithmic and Problem solving Tests

The APTs and tester can be found here.
• APTs

APT: Access Level

Problem Statement
In many computer systems and networks, different users are granted different levels of access to different resources. In this case, you are given a list of rights, indicating the privilege level of each user to use some system resource. You are also given a list of permissions, which is the minimum permission a user must have to use this resource.

You are to return a string indicating which users can and cannot access this resource. Each character in the return value corresponds to the elements of users with the same index. ‘A’ indicates the user is allowed access, while ‘D’ indicates the user is denied access.

```
public class AccessLevel {
    public String[] rights, listPermissions()
    }
    // Fill in code here
```

Homework

• Recitation assignment due BEFORE recitation on Friday
  • Setup and start coding in Java
  • Start working on APTs – Due next Thursday

• Next class
  • Java programming
  • APTs

• Is compSci 201 right for you?
  • Come see me if you are unsure