ACM Open House

Come learn about our active projects and interest groups in ACM...

Meet people, get involved and eat free pizza!

Thursday, January 24, 7pm

1404 Siebel Center


Promoting Undergraduate Research in Engineering (P.U.R.E.)
Spring 2013 Information Session
Wednesday, January 23rd, 6-7pm
1404 Siebel Center
pure.engr.illinois.edu
Computer Science • University of Illinois at Urbana-Champaign

Announcements

Course policies:

http://cs.illinois.edu/class/cs225

For general assistance:

http://piazza.com/class#spring2013/cs225

HW0 available, due 1/23 before lecture

MP1 available, due 1/22, 11:59p.

Linux tutorial: http://www.acm.uiuc.edu/sls/sp2013.shtml

Structure of a class defn:

```
class sphere{

public:

sphere();

sphere(double r);

void setRadius(double newRad);

double getDiameter() const;

…

private:

double theRadius; //inches

};
```

```
… //constructor(s) (next page)
void sphere::setRadius(double newRad){


}

double sphere::getDiameter() const {


}

...
```

```
int main(){




}
```

1. Declare a default sphere.
2. Declare a sphere whose radius is 3.5.
3. Print the diameter of one of your spheres.
4. Change the radius of the other sphere to be the size of your head.

Constructors (intro):

Points to remember abt ctors:

1.

2.

3.

```
int main(){
  sphere a;
  sphere b(3.5);
}
```

```
…
//default constructor
sphere::sphere(){
   theRadius = 1.0;
}

//default constructor, alternative
sphere::sphere()
{

}

//constructor with given radius
sphere::sphere(double r){

   theRadius = r;


}
...
```

Class Definition… where are we?

Wednesday's plan:

Ideas/concepts:

- Class definitions
- Class function implementation
- Constructors
- Clients

OOP: we now understand how C++ supports

- Inheritance
- Encapsulation (separation of interface from implementation)
  1)
  2)
- Polymorphism

Switching gears…

Configure your iMac 27-inch

Use the options below to build the system of your dreams

Memory

More memory (RAM) increases performance and enables your computer to perform faster and better. Choose additional 1066MHz DDR3 memory for your iMac.

Learn more

The more memory your computer has, the more programs you can run simultaneously, and the better performance you get from your computer.

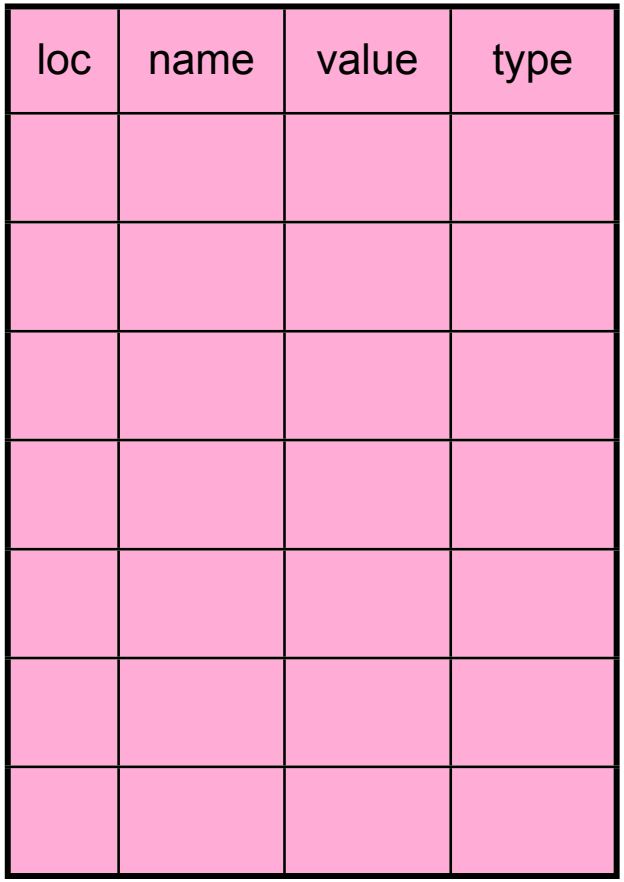
- Select the standard memory configuration to support day-to-day tasks such as email, word processing, and web browsing as well as more complex tasks such as editing photos, creating illustrations, and building presentations.
- Upgrade your memory to enjoy greater performance for more intensive computing tasks, such as video editing and DVD authoring

Your iMac uses one of the fastest memory technologies available today—1066MHz, Double Data Rate (DDR3), synchronous dynamic random-access memory (SDRAM)—ensuring that the processor is constantly fed with data without wasting clock cycles.

- (•) 4GB 1066MHz DDR3 SDRAM - 2x2GB
- ( ) 8GB 1066MHz DDR3 SDRAM - 4x2GB [Add $200.00]
- ( ) 8GB 1066MHz DDR3 SDRAM - 2x4GB [Add $600.00]
- ( ) 16GB 1066MHz DDR3 SDRAM - 4x4GB [Add $1,400.00]

Variables and memory in C++

Stack memory



Pointers - Intro

```
int x;
int * p;
```

How do we assign to p?

```
p =
```

```
p =
```

_____ operator: &

_____ operator: *

Stack memory

loc	name	value	type
a20	x	5	int
a40	p		int *

Pointer variables and dynamic memory allocation:

```
int * p;
```

Stack memory

loc	name	type	value
a40	p	int *	

Heap memory

loc	name	type	value

Youtube: pointer binky c++

Fun and games with pointers: (warm-up)

```
int * p, q;
```

What type is q?_____

```
int *p;
int x;
p = &x;
*p = 6;
cout << x;
cout << p;
```

What is output?_____

What is output?_____

Write a statement whose output is the value of `x`, using variable `p`: _____

Fun and games with pointers:

```
int *p, *q;
p = new int;
q = p;
*q = 8;
cout << *p;
q = new int;
*q = 9;
p = NULL;
delete q;
q = NULL;
```

What is output?_____

Do you like this?_____

Do you like this?_____

Memory leak:

Deleting a null pointer:

Dereferencing a null pointer:

Fun and games with pointers:

```
int * p, * q;
p = new int;
q = p;
delete p;
… // some random stuff
cout << *q;
```

Do you like this?_____