



# CS 225

**Data Structures**

## sphere.h

```
1 #ifndef SPHERE_H
2 #define SPHERE_H
3
4 class Sphere {
5     public:
6         double getRadius();
7
8
9
10
11
12     private:
13
14
15 };
16
17 #endif
18
19
20
```

## sphere.cpp

```
1 #include "sphere.h"
2
3 double Sphere::getRadius() {
4
5
6 }
7
8
9
10
11
12
13
14
15
16
17
18
19
20
```



# Namespaces

# Namespaces

cs225

**Sphere**

**PNG**

**HSLAPixel**

std

**cout**

**vector**

**queue**

...

...

## sphere.h

```
1 #ifndef SPHERE_H
2 #define SPHERE_H
3
4 namespace cs225 {
5     class Sphere {
6     public:
7         double getRadius();
8         double getVolume();
9
10
11
12
13     private:
14         double r_;
15
16     };
17 }
18
19 #endif
20
```

## sphere.cpp

```
1 #include "sphere.h"
2
3 namespace cs225 {
4     double Sphere::getRadius() {
5         return r_;
6     }
7
8     double Sphere::getVolume() {
9         return (4 * r_ * r_ * r_ *
10             3.14159265) / 3.0;
11     }
12 }
13
14
15
16
17
18
19
20
```

## main.cpp

```
1 #include "sphere.h"
2 #include <iostream>
3
4 int main() {
5     cs225::Sphere s;
6     std::cout << "Radius: " << s.getRadius() << std::endl;
7     return 0;
8 }
```

## main.cpp

```
1 #include "sphere.h"
2 #include <iostream>
3
4 using namespace std;
5 using namespace cs225;
6
7 int main() {
8     Sphere s;
9     cout << "Radius: " << s.getRadius() << endl;
10    return 0;
11 }
```



# Constructor



## sphere.h

```
1 #ifndef SPHERE_H
2 #define SPHERE_H
3 namespace cs225 {
4     class Sphere {
5     public:
6         Sphere();
7         double getRadius();
8         double getVolume();
9
10
11
12
13     private:
14         double r_;
15
16     };
17 }
18
19 #endif
20
```

## sphere.cpp

```
1 #include "sphere.h"
2 namespace cs225 {
3     Sphere::Sphere() {
4
5
6     }
7
8     double Sphere::getRadius() {
9         return r_;
10    }
11
12    double Sphere::getVolume() {
13        return (4 * r_ * r_ * r_ *
14                3.14159265) / 3.0;
15    }
16 }
17
18
19
20
```

## sphere.h

```
1 #ifndef SPHERE_H
2 #define SPHERE_H
3 namespace cs225 {
4     class Sphere {
5     public:
6         Sphere(double r);
7         double getRadius();
8         double getVolume();
9
10
11
12
13     private:
14         double r_;
15
16     };
17 }
18
19 #endif
20
```

## sphere.cpp

```
1 #include "sphere.h"
2 namespace cs225 {
3     Sphere::Sphere(double r) {
4
5
6     }
7
8     double Sphere::getRadius() {
9         return r_;
10    }
11
12    double Sphere::getVolume() {
13        return (4 * r_ * r_ * r_ *
14                3.14159265) / 3.0;
15    }
16 }
17
18
19
20
```

## sphere.h

## sphere.cpp

```
1 #ifndef SPHERE_H
2 #define SPHERE_H
3 namespace cs225 {
4     class Sphere {
5     public:
6         Sphere(double r);
7         double getRadius();
8         double getVolume();
9
10    #include "sphere.h"
11    #include <iostream>
12
13    using namespace std;
14    using namespace cs225;
15
16    int main() {
17        Sphere s;
18        cout << "Radius: " << s.getRadius() << endl;
19        return 0;
20    }
```

```
1 #include "sphere.h"
2 namespace cs225 {
3     Sphere::Sphere(double r) {
4         r_ = r;
5     }
6
7     double Sphere::getRadius() {
8
9
10    }
11
12    double Sphere::getVolume() {
13
14    }
15
16    }
17
18
19
20
```

## main.cpp

```
1 #include "sphere.h"
2 #include <iostream>
3
4 using namespace std;
5 using namespace cs225;
6
7 int main() {
8     Sphere s;
9     cout << "Radius: " << s.getRadius() << endl;
10    return 0;
11 }
```

## sphere.h

## sphere.cpp

```
1 #ifndef SPHERE_H
2 #define SPHERE_H
3 namespace cs225 {
4     class Sphere {
5     public:
6
7         Sphere(double r);
8         double getRadius();
```

```
1 #include "sphere.h"
2 namespace cs225 {
3
4
5
6
7     Sphere::Sphere(double r) {
8         r = r;
```

```
9
10 #include "sphere.h"
11 #include <iostream>
12
13 using namespace std;
14 using namespace cs225;
15
16 int main() {
17     Sphere s;
18     cout << "Radius: " << s.getRadius() << endl;
19     return 0;
20 }
```

## main.cpp

```
20 #endif
```

```
20
```

## sphere.h

## sphere.cpp

```
1 #ifndef SPHERE_H
2 #define SPHERE_H
3 namespace cs225 {
4     class Sphere {
5     public:
6
7         Sphere(double r);
8         double getRadius();
```

```
1 #include "sphere.h"
2 namespace cs225 {
3
4
5
6
7     Sphere::Sphere(double r) {
8         r = r;
```

```
9
10 #include "sphere.h"
11 #include <iostream>
12
13 using namespace std;
14 using namespace cs225;
15
16 int main() {
17     Sphere s;
18     cout << "Radius: " << s.getRadius() << endl;
19     return 0;
20 }
```

## main.cpp

```
20 #endif
```

```
20
```



# Pointers

```
Sphere s1;
```

```
Sphere* s2 = &s1;
```

-same as-

```
Sphere *s2 = &s1;
```

# CS 225 – Things To Be Doing

## **Lab Sections Start Today...**

Make sure to attend your lab section this week – it's worth points!

## **MP1 is coming this Friday...**

Due: Monday, Sept. 11<sup>th</sup> (weekend + week + weekend from now)

## **Office Hours are Starting Up...**

Wade: Today, 12noon – 1:45pm, ECEB 3034

Mattox: Friday, 12noon – 1:45pm, ECEB 3034

Open Lab Office Hours start on Friday (basement of Siebel)

## **See you Friday!**