Princeton University
COS 217: Introduction to Programming Systems
C Structures

Defining a Structure Type

```
struct S
{
   int i;
   double d;
};
```

Defining a Structure

```
{
   struct S s1;
   ...
}
```

Initializing a Structure

```
{
   struct S s1 = {1, 2.2};
   ...
}
```

Accessing the Fields of a Structure

```
{
   struct S s1;
   struct S *ps2;
   ...
   s1.i = 1;
   s1.d = 2.2;
   ...
   ps2 = &s1;
   ...
   (*ps2).i = 3;
   (*ps2).d = 4.4;
   ...
   ps2->i = 5;
   ps2->d = 6.6;
   ...
}
```

Assigning One Structure to Another

```
{
   struct S s1;
   struct S s2;
   ...
   s2 = s1;
   ...
}
```

Structures as Function Parameters

```
void f(struct S s)
{
    ...
}

struct S s1;
...
f(s1);
...
```

Structures as Function Return Values

```
struct S f(void)
{
   struct S s;
   ...
   return s;
}

struct S s1;
...
s1 = f();
...
```