Variables

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Variables

- These slides introduce variables
- Upon completion: You should be able to interpret and code using variables

Variables

- Variable
  - Symbolic representation for a value - name
  - Stored in memory (data)
  - Can be modified during execution
  - Since it requires space in memory it must have a type to tell the compiler how much space to reserve
  - Allowed characters: letters, numbers, _
  - Cannot begin with a number

Variables

- Variable Declaration
  - Specify the type and name for a variable
  - Must be declared before it can be used

```
int foo;
float rate;
char initial1;

int var1, this, is, not, a, good, practice;

int AccountBalance;
int annual_interest_rate;
```

** Note: name length has no impact on compiled program size
focus on readable code

Variables

- Variable Initialization
  - Variables are not initialized just by declaring them
    - They do not automatically have a value of 0
    - They may well have garbage values

Nothing stops you from using an un-initialized variable

```
int foo = 23;
```

```
int foo, boo = 23;
```

```
int count;
count = 0;
```

```
int foo = 23, boo = 23;
```

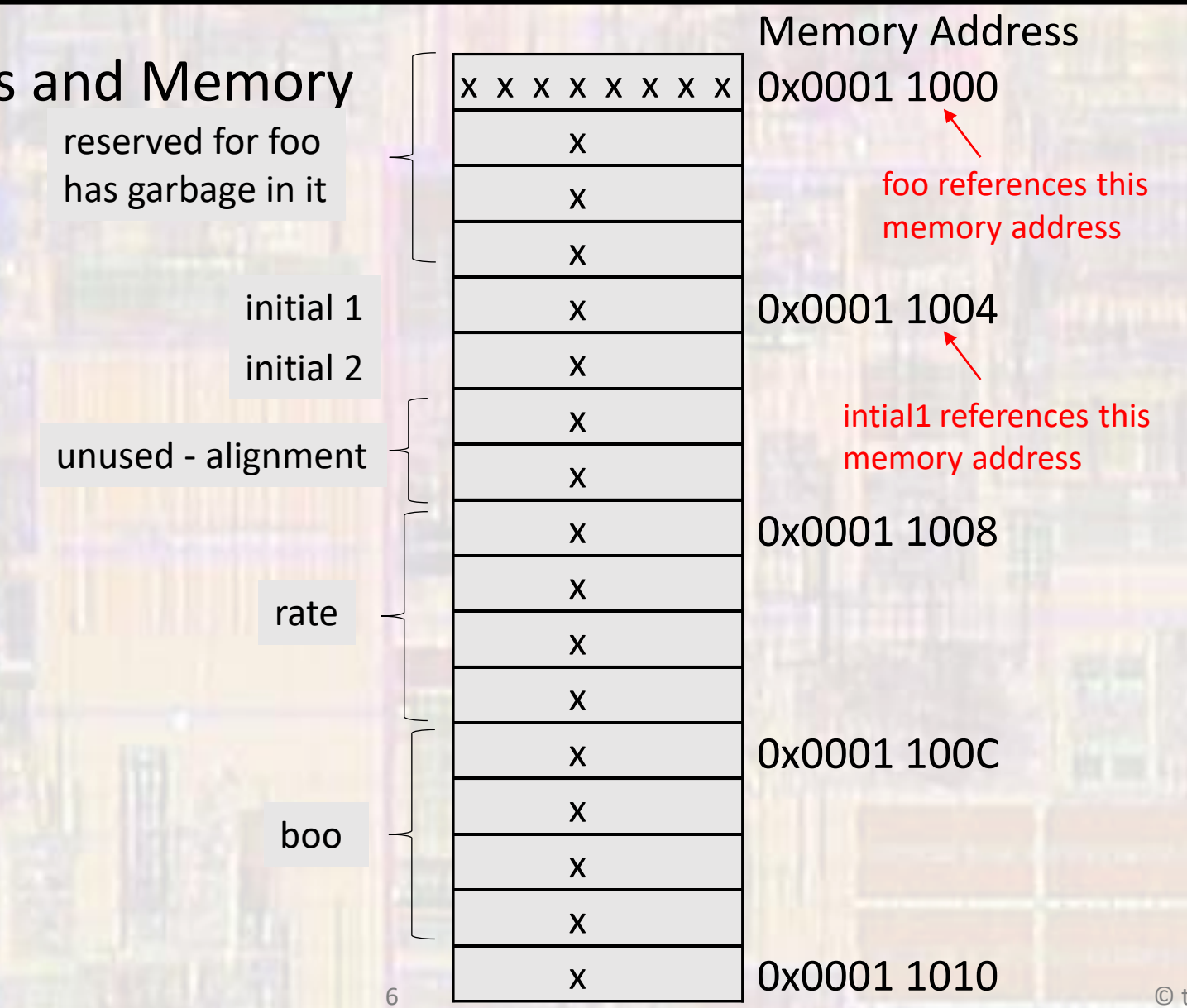
```
char fx = 'A';
```

```
float pie = 3.14159;
```

Variables

- Variables and Memory

```
int foo;
char initial1;
float rate;
char initial 2;
int boo;
```



Variables

- Variables and Memory

```
int foo;
char initial1;
float rate;
char initial 2;
int boo;
initial1 = 't';
rate = 2.5;
boo = 255;
```