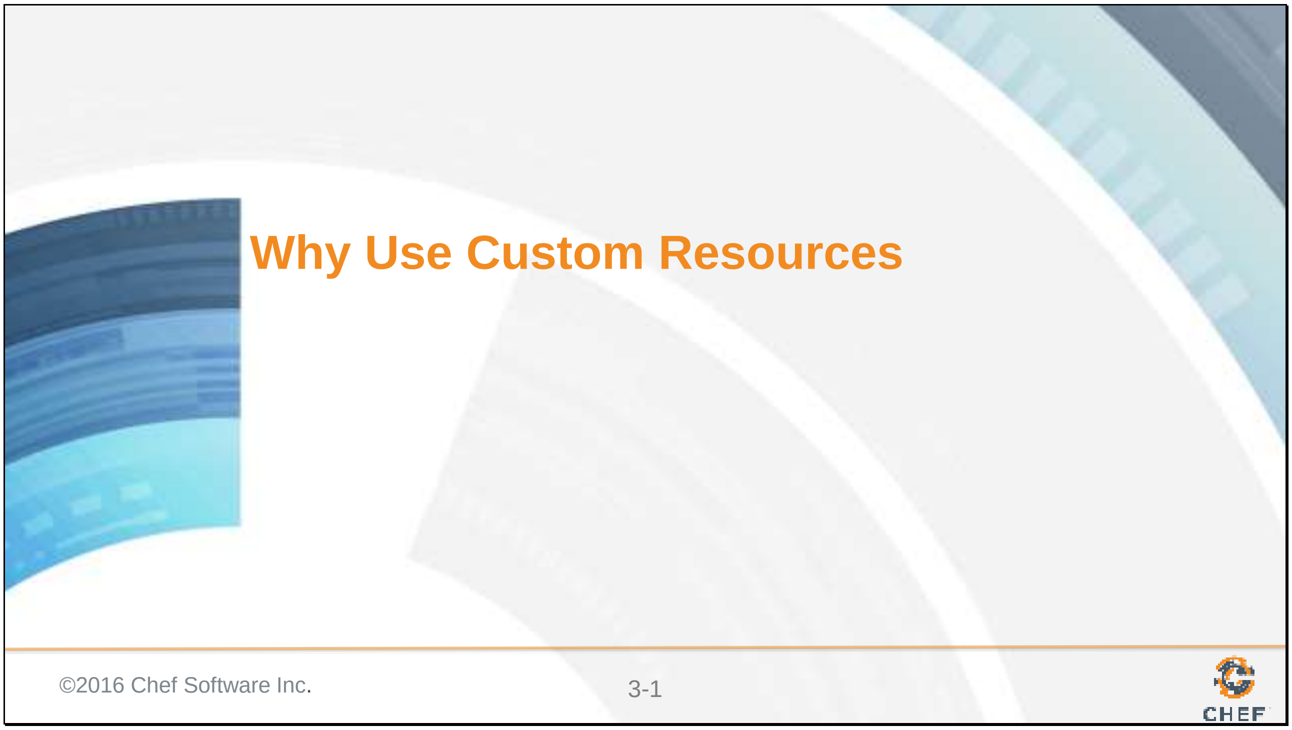
3: Why Use Custom Resources

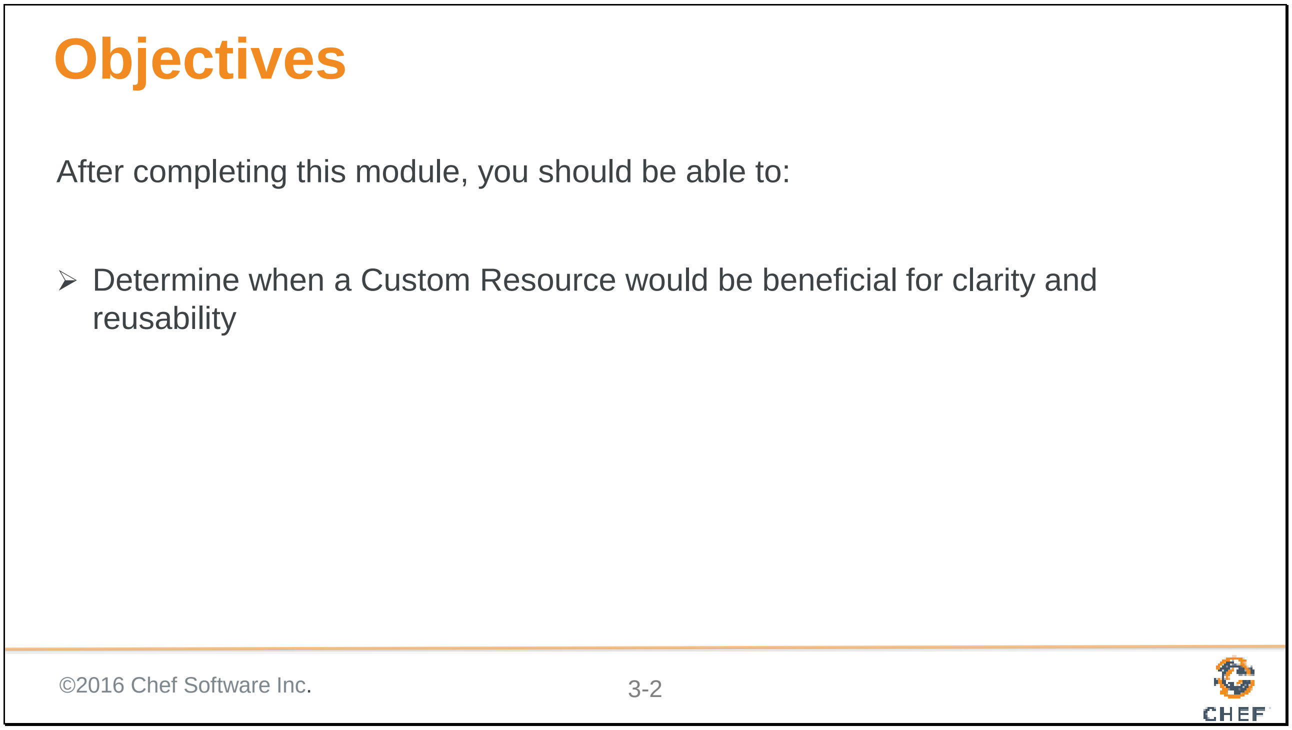


Why Use Custom Resources

3-1

As you can see there are more than a few ways to extend Chef and create a resource or resource-like implementation within your recipes. But before we do that, it is important to understand the value that a custom resource brings to a recipes.

Slide 2



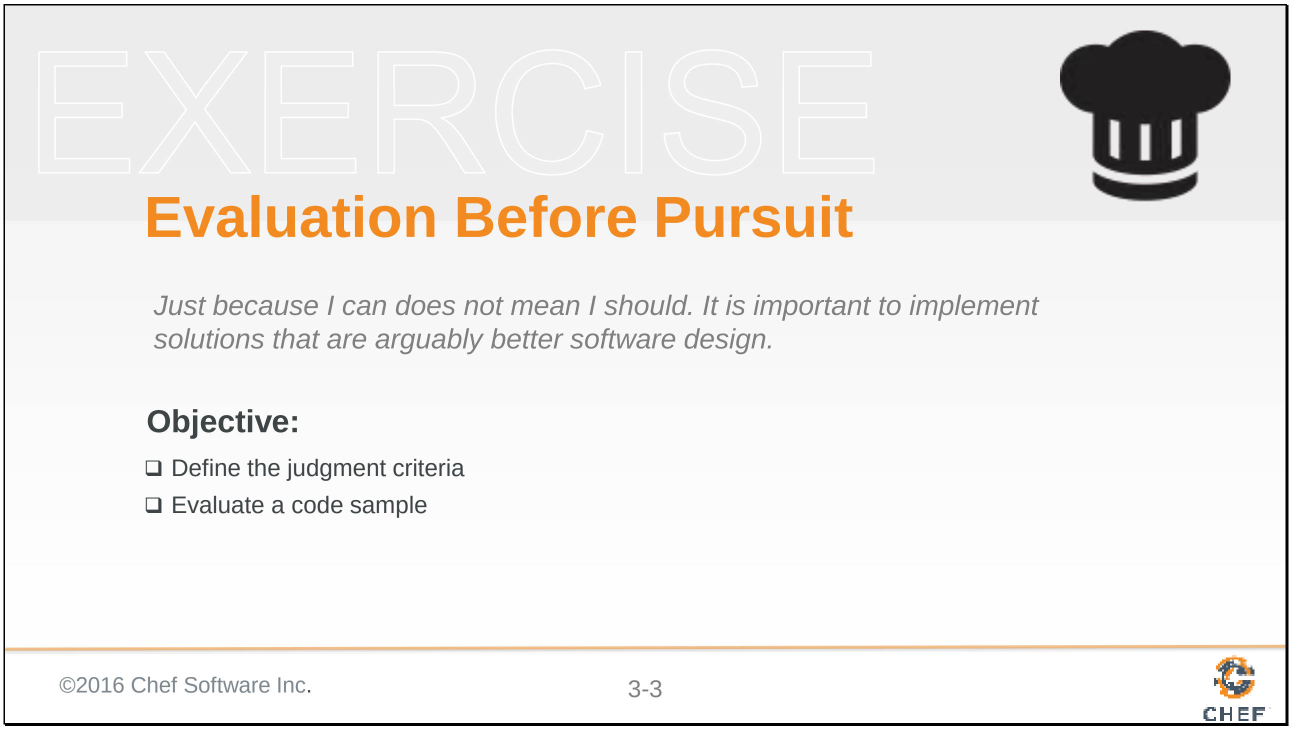
Objectives

After completing this module, you should be able to:

- Determine when a Custom Resource would be beneficial for clarity and reusability

After completing this module you will be able to describe when a Custom Resource would be beneficial for clarity and reusability.

Slide 3



EXERCISE

Evaluation Before Pursuit

Just because I can does not mean I should. It is important to implement solutions that are arguably better software design.

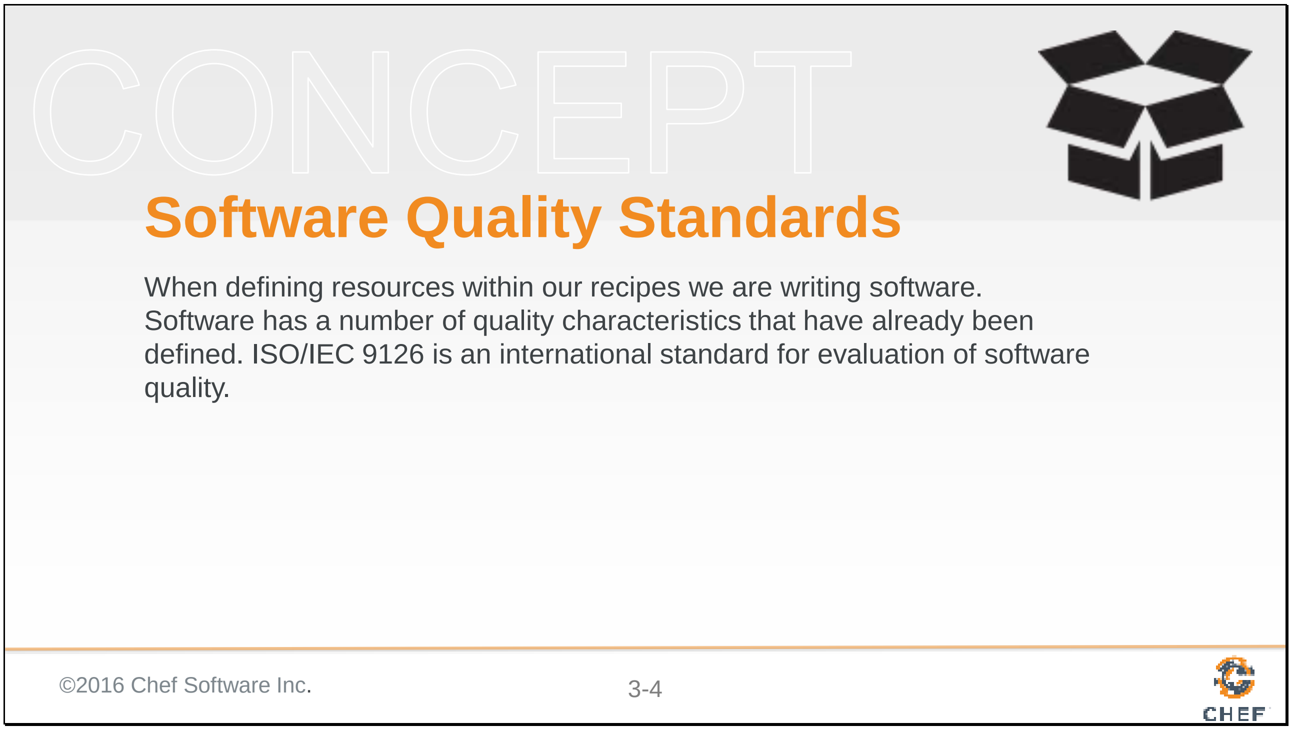
Objective:

- ❑ Define the judgment criteria
- ❑ Evaluate a code sample

3-3

As an group exercise we are going to look at a series of resources and discuss their quality. Quality can be rather variable unless we select a criteria for which to judge it.

Slide 4



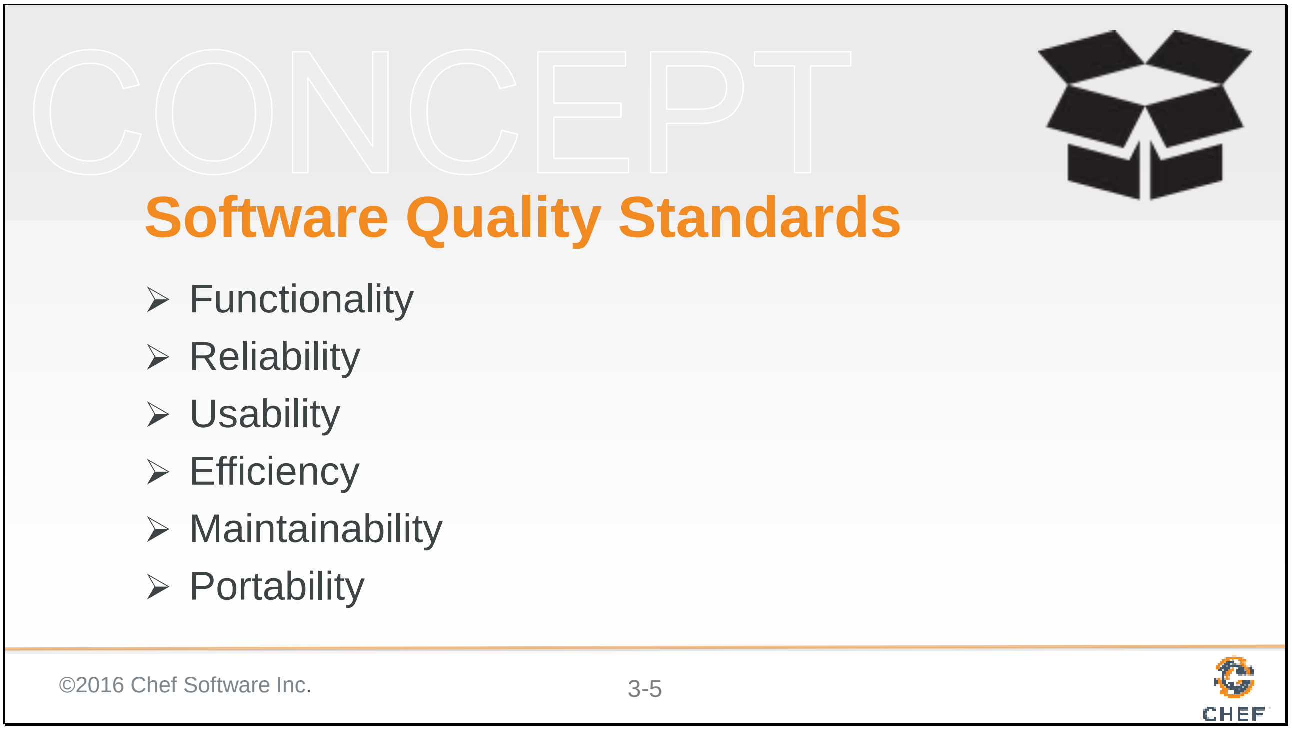
CONCEPT

Software Quality Standards

When defining resources within our recipes we are writing software. Software has a number of quality characteristics that have already been defined. ISO/IEC 9126 is an international standard for evaluation of software quality.

When defining resources within our recipes we are writing software. Software has a number of quality characteristics that have already been defined. ISO/IEC 9126 is an international standard for evaluation of software quality.

Slide 5



CONCEPT

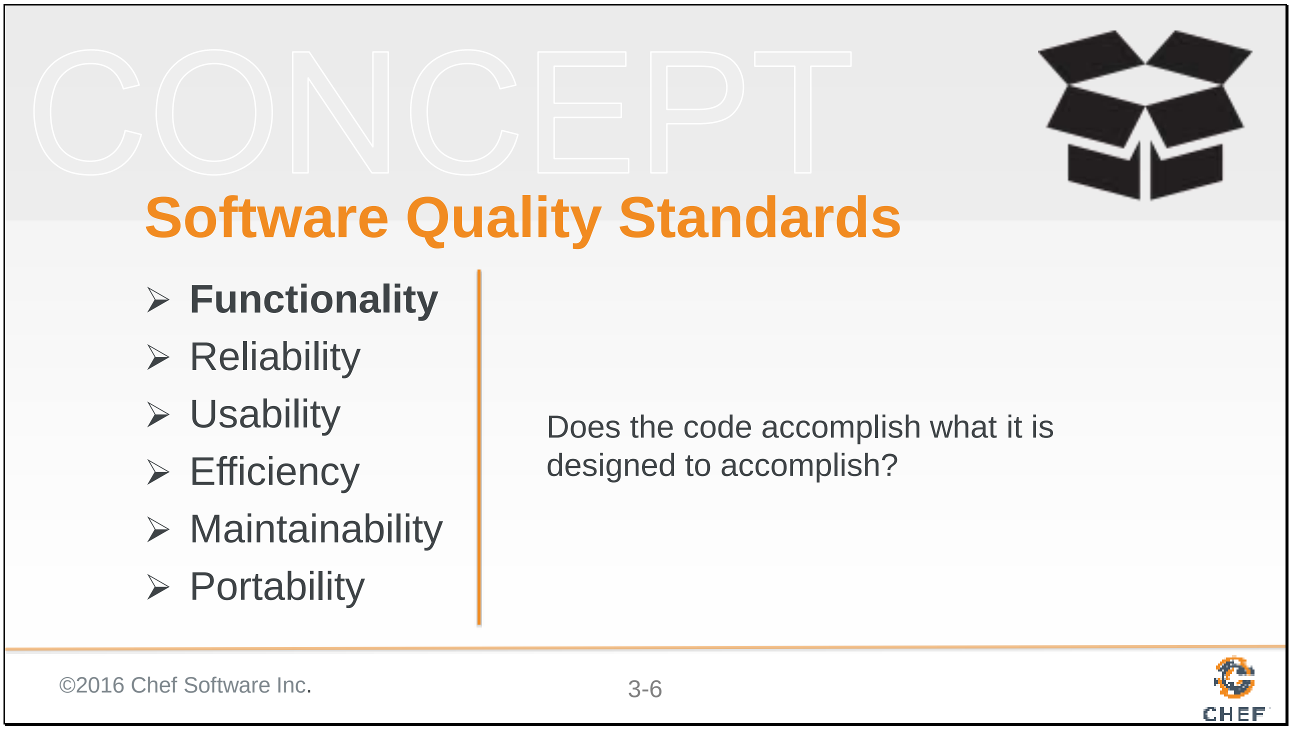
Software Quality Standards

- Functionality
- Reliability
- Usability
- Efficiency
- Maintainability
- Portability

3-5

This standard identifies 6 main quality characteristics. Let's talk about each one of these so that we have a shared understanding of what we mean when using them in this exercise.

Slide 6



CONCEPT

Software Quality Standards

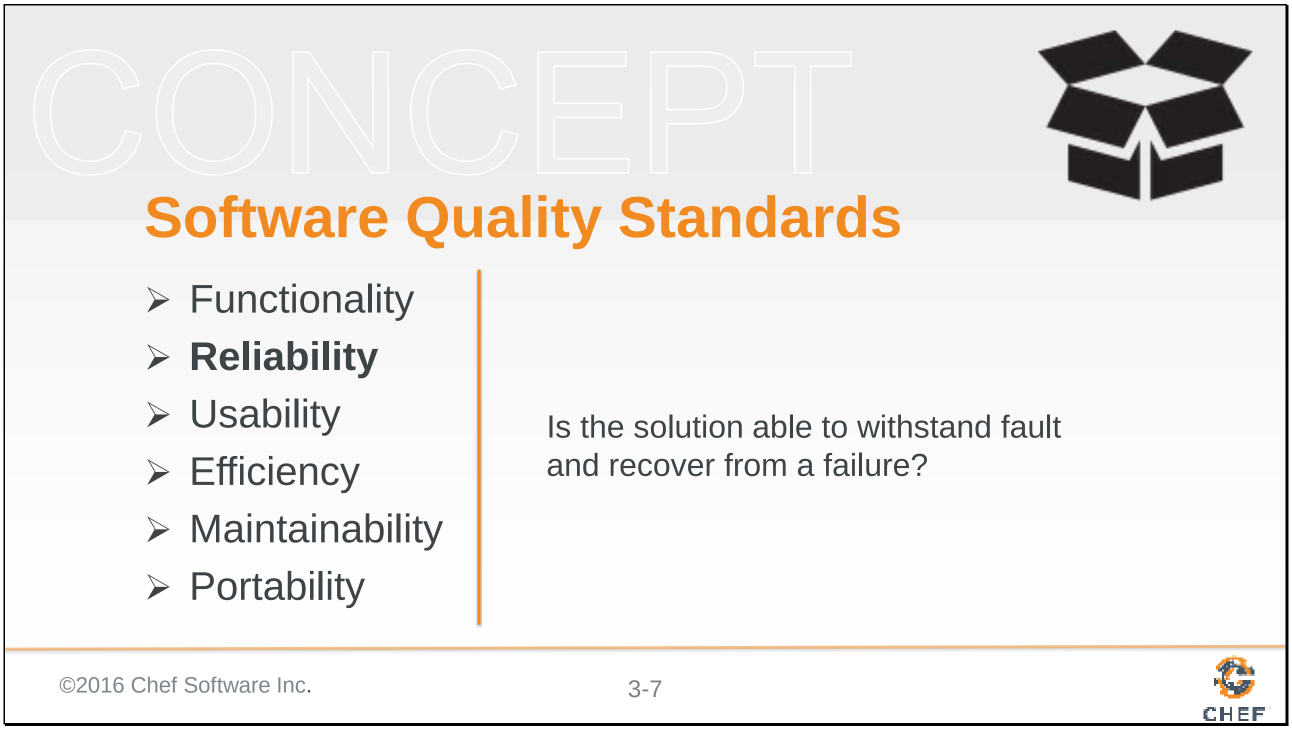
- **Functionality**
- Reliability
- Usability
- Efficiency
- Maintainability
- Portability

Does the code accomplish what it is designed to accomplish?

3-6

Functionality is the essential purpose of any product or service. Does the code accomplish what it is designed to accomplish? Functionality may also be concerned with if it does so securely and within compliance guidelines.

Slide 7



CONCEPT

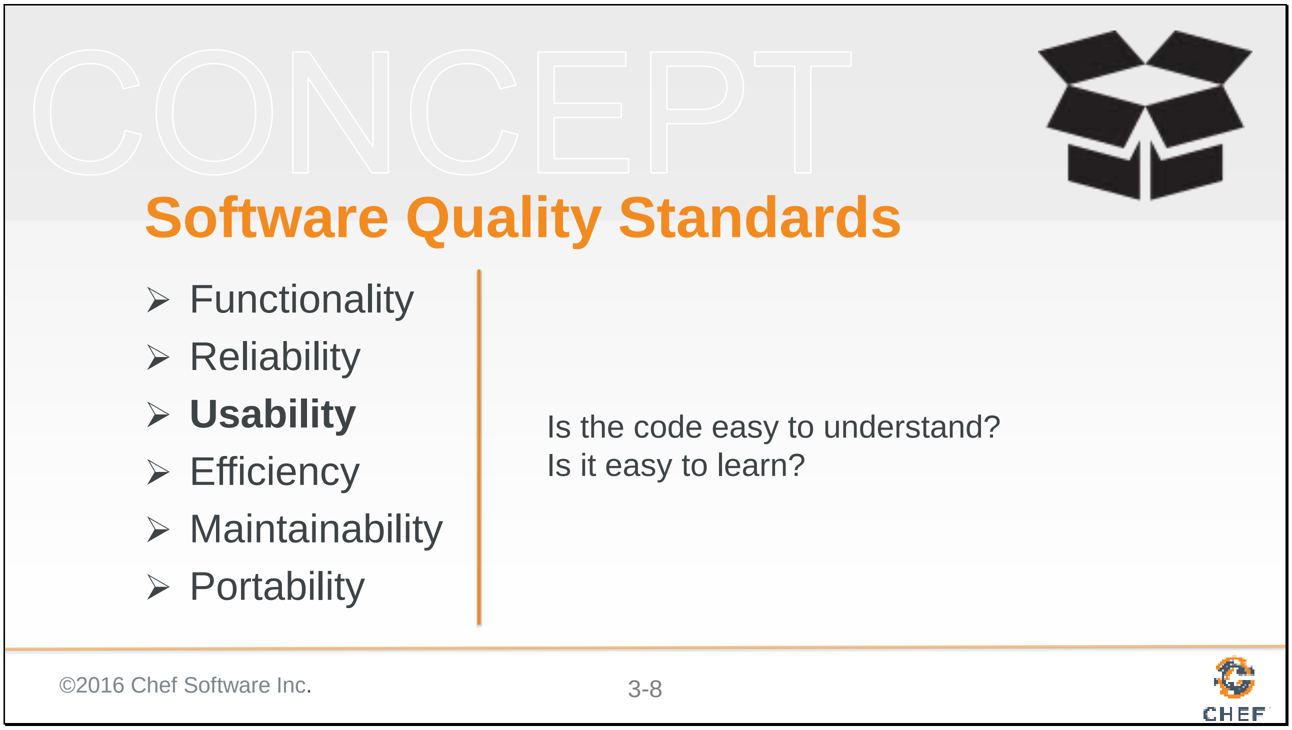
Software Quality Standards

- Functionality
- **Reliability**
- Usability
- Efficiency
- Maintainability
- Portability

Is the solution able to withstand fault and recover from a failure?

Reliability is a judgment of whether the code accomplishes its functional goal consistently, is able to withstand fault, and recover from a failure.

Slide 8



CONCEPT

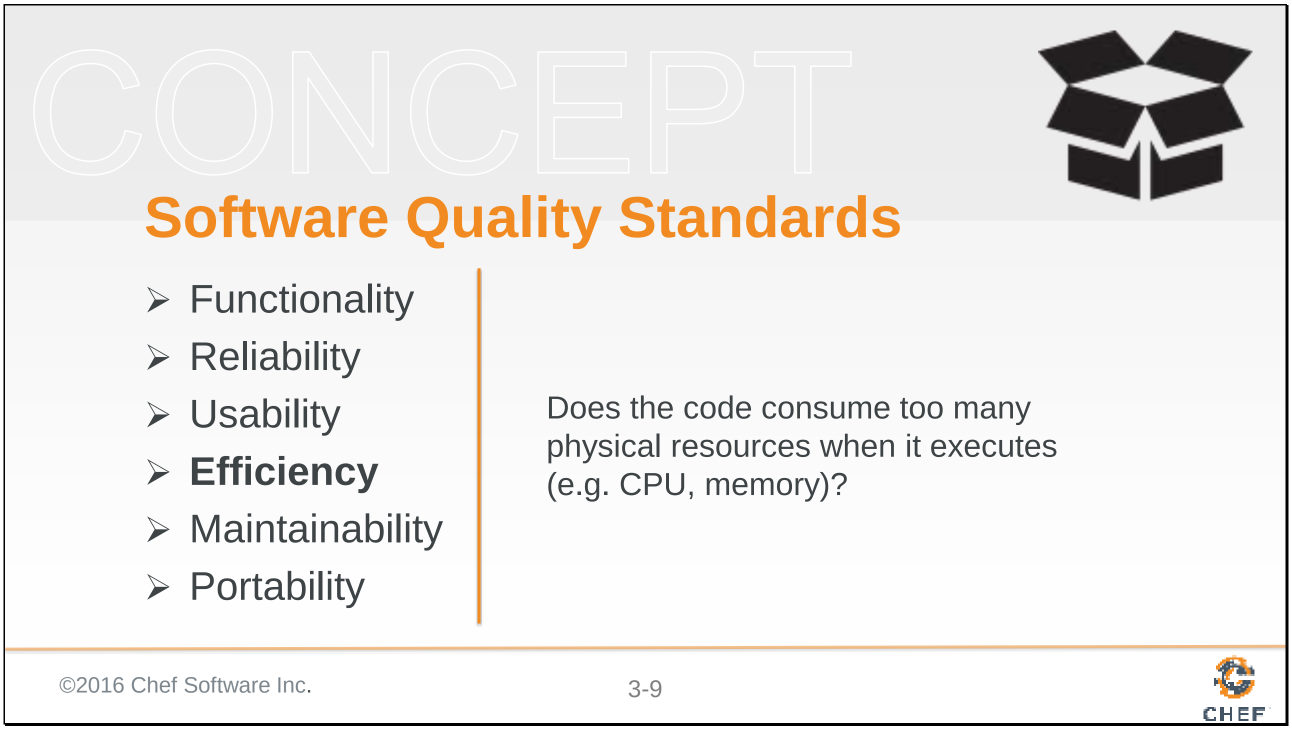
Software Quality Standards

- Functionality
- Reliability
- **Usability**
- Efficiency
- Maintainability
- Portability

Is the code easy to understand?
Is it easy to learn?

Usability refers to the ease of use for the given code. Is the code easy to understand? Is it easy to learn? Does it adhere to common team standards?

Slide 9



CONCEPT

Software Quality Standards

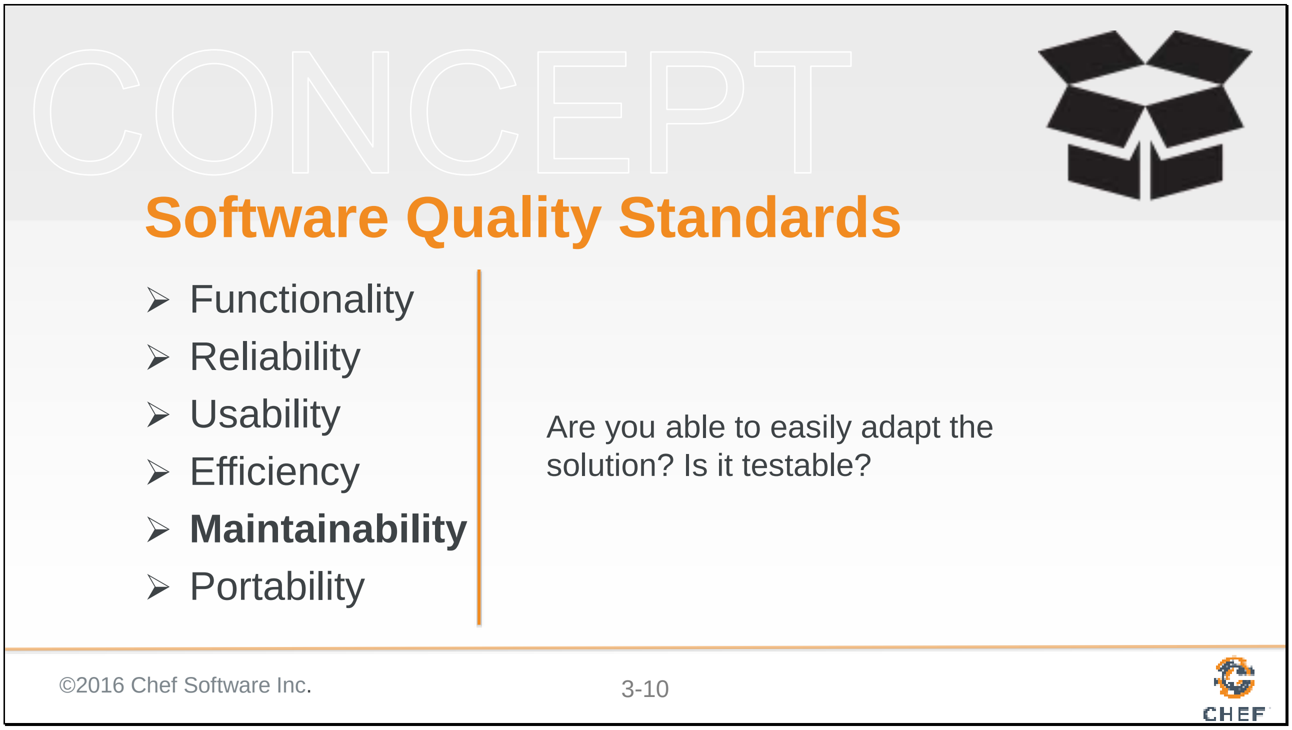
- Functionality
- Reliability
- Usability
- **Efficiency**
- Maintainability
- Portability

Does the code consume too many physical resources when it executes (e.g. CPU, memory)?

3-9

Efficiency is concerned with the system resources required to achieve the functionality. We may consider the time, CPU, memory, network requirements, or physical space it takes to accomplish the intended operation.

Slide 10



CONCEPT

Software Quality Standards

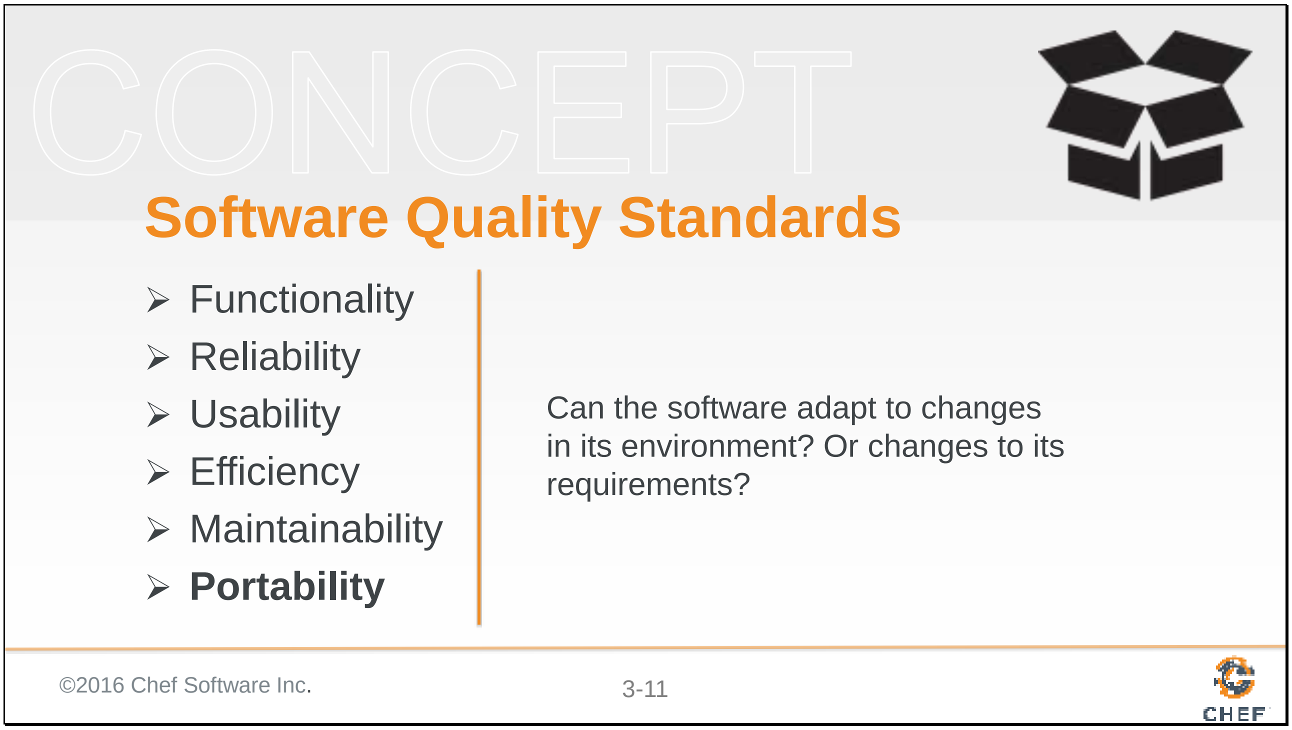
- ➢ Functionality
- ➢ Reliability
- ➢ Usability
- ➢ Efficiency
- ➢ **Maintainability**
- ➢ Portability

Are you able to easily adapt the solution? Is it testable?

3-10

Maintainability measures the code to see if it is supportable. If there is a failure are you able to quickly identify the issue? Are you able to easily adapt the solution? Is it testable?

Slide 11



CONCEPT

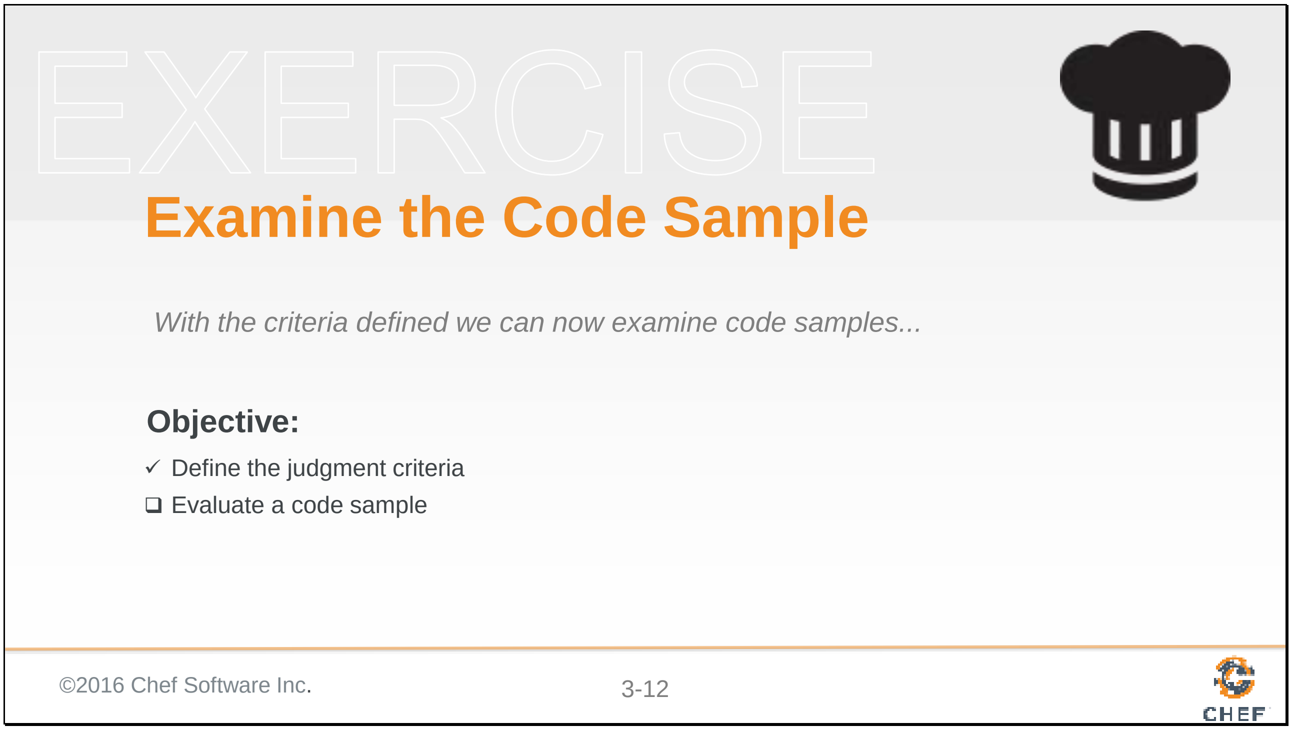
Software Quality Standards

- Functionality
- Reliability
- Usability
- Efficiency
- Maintainability
- **Portability**

Can the software adapt to changes in its environment? Or changes to its requirements?

Portability refers to how well the software can adapt to changes in its environment or with its requirements. This may also include evaluating code for its adaptability and maybe even be easily replaced.

Slide 12



EXERCISE

Examine the Code Sample

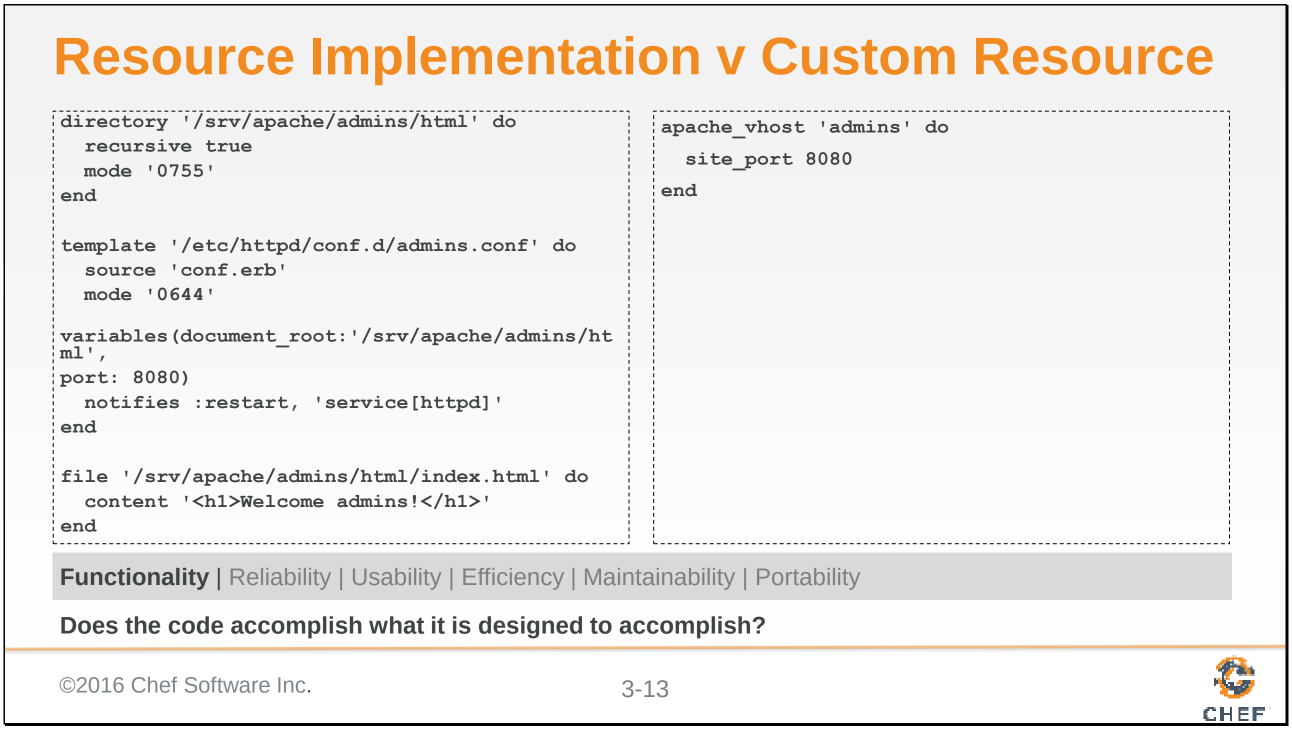
With the criteria defined we can now examine code samples...

Objective:

✓ Define the judgment criteria
❑ Evaluate a code sample

Let's examine this first example and apply the criteria that we have defined.

Slide 13



Resource Implementation v Custom Resource

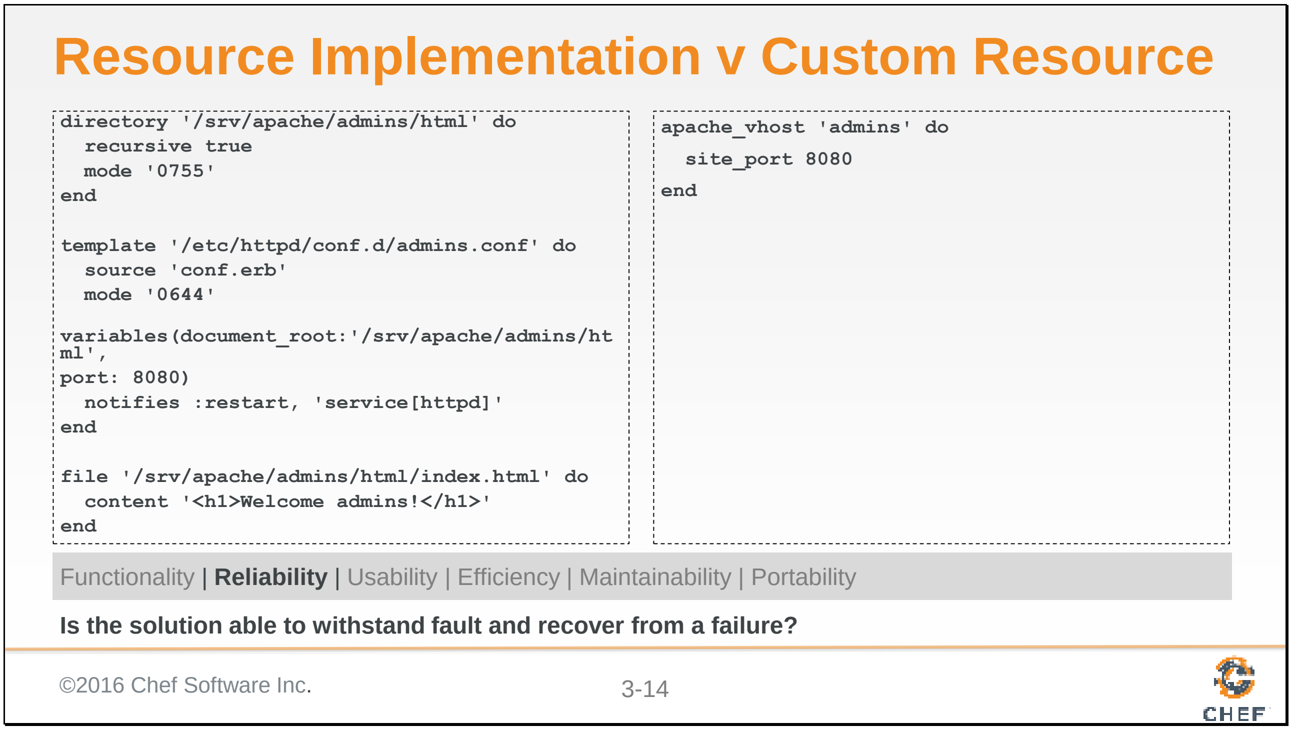
```
directory '/srv/apache/admins/html' do
  recursive true
  mode '0755'
end

template '/etc/httpd/conf.d/admins.conf' do
  source 'conf.erb'
  mode '0644'

variables(document_root:'/srv/apache/admins/ht
ml',
port: 8080)
  notifies :restart, 'service[httpd]'
end

file '/srv/apache/admins/html/index.html' do
  content '<h1>Welcome admins!</h1>'
end
```

```
apache_vhost 'admins' do
  site_port 8080
end
```

Functionality | Reliability | Usability | Efficiency | Maintainability | Portability

Does the code accomplish what it is designed to accomplish?

Slide 14



Resource Implementation v Custom Resource

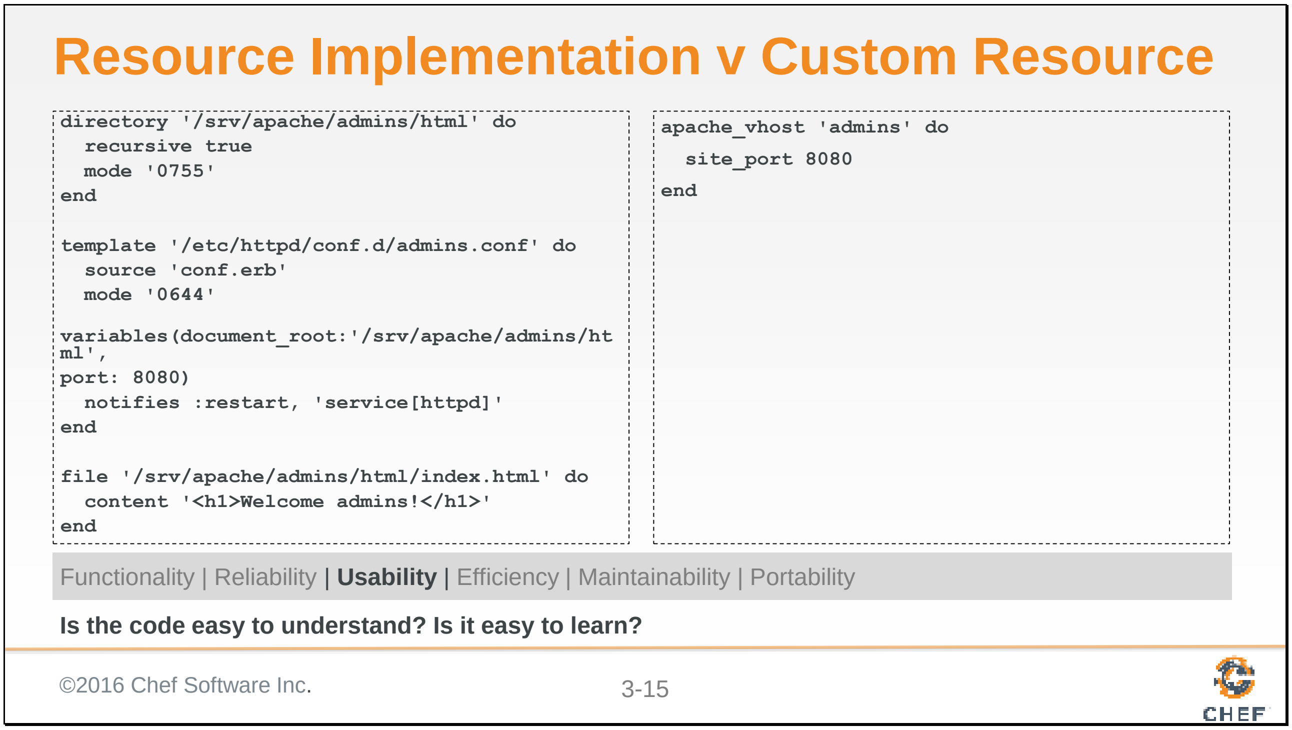
```
directory '/srv/apache/admins/html' do
  recursive true
  mode '0755'
end

template '/etc/httpd/conf.d/admins.conf' do
  source 'conf.erb'
  mode '0644'

variables(document_root:'/srv/apache/admins/ht
ml',
port: 8080)
  notifies :restart, 'service[httpd]'
end

file '/srv/apache/admins/html/index.html' do
  content '<h1>Welcome admins!</h1>'
end
```

```
apache_vhost 'admins' do
  site_port 8080
end
```

Functionality | **Reliability** | Usability | Efficiency | Maintainability | Portability

Is the solution able to withstand fault and recover from a failure?

Slide 15



Resource Implementation v Custom Resource

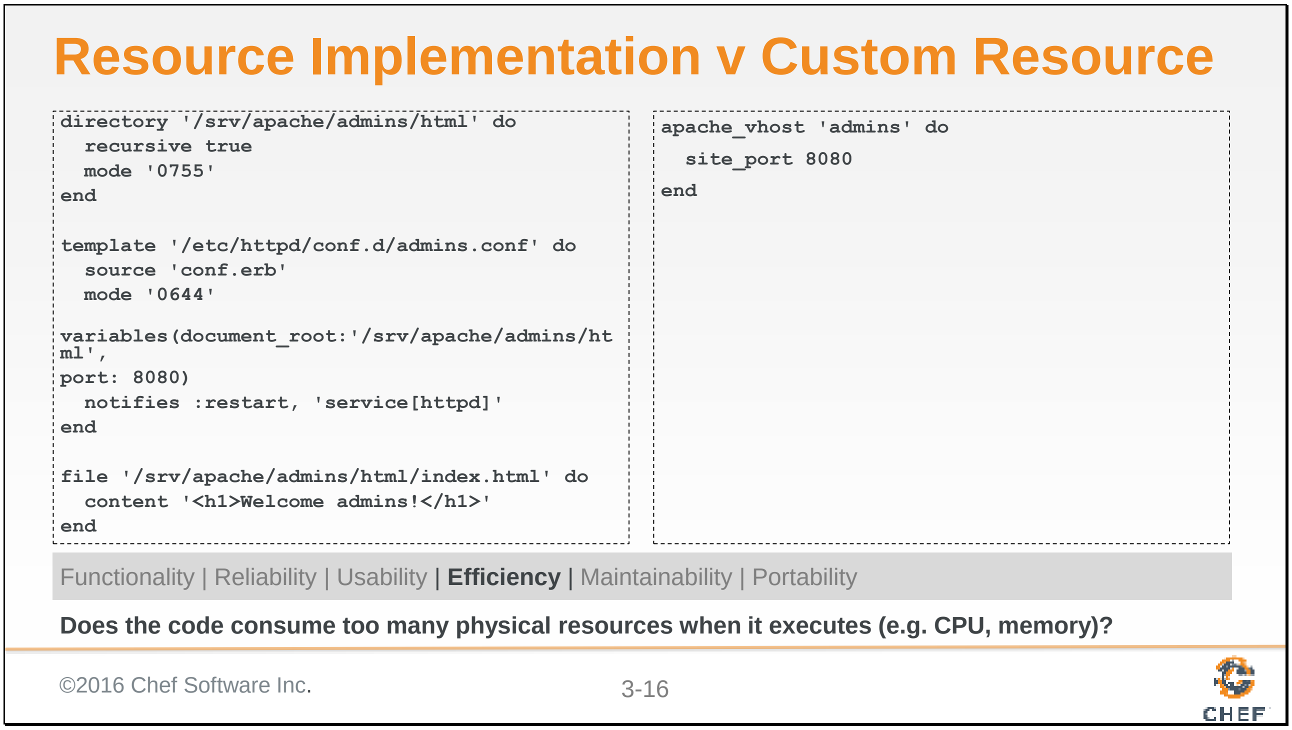
```
directory '/srv/apache/admins/html' do
  recursive true
  mode '0755'
end

template '/etc/httpd/conf.d/admins.conf' do
  source 'conf.erb'
  mode '0644'

variables(document_root:'/srv/apache/admins/ht
ml',
port: 8080)
  notifies :restart, 'service[httpd]'
end

file '/srv/apache/admins/html/index.html' do
  content '<h1>Welcome admins!</h1>'
end
```

```
apache_vhost 'admins' do
  site_port 8080
end
```

Functionality | Reliability | **Usability** | Efficiency | Maintainability | Portability

Is the code easy to understand? Is it easy to learn?

Slide 16



Resource Implementation v Custom Resource

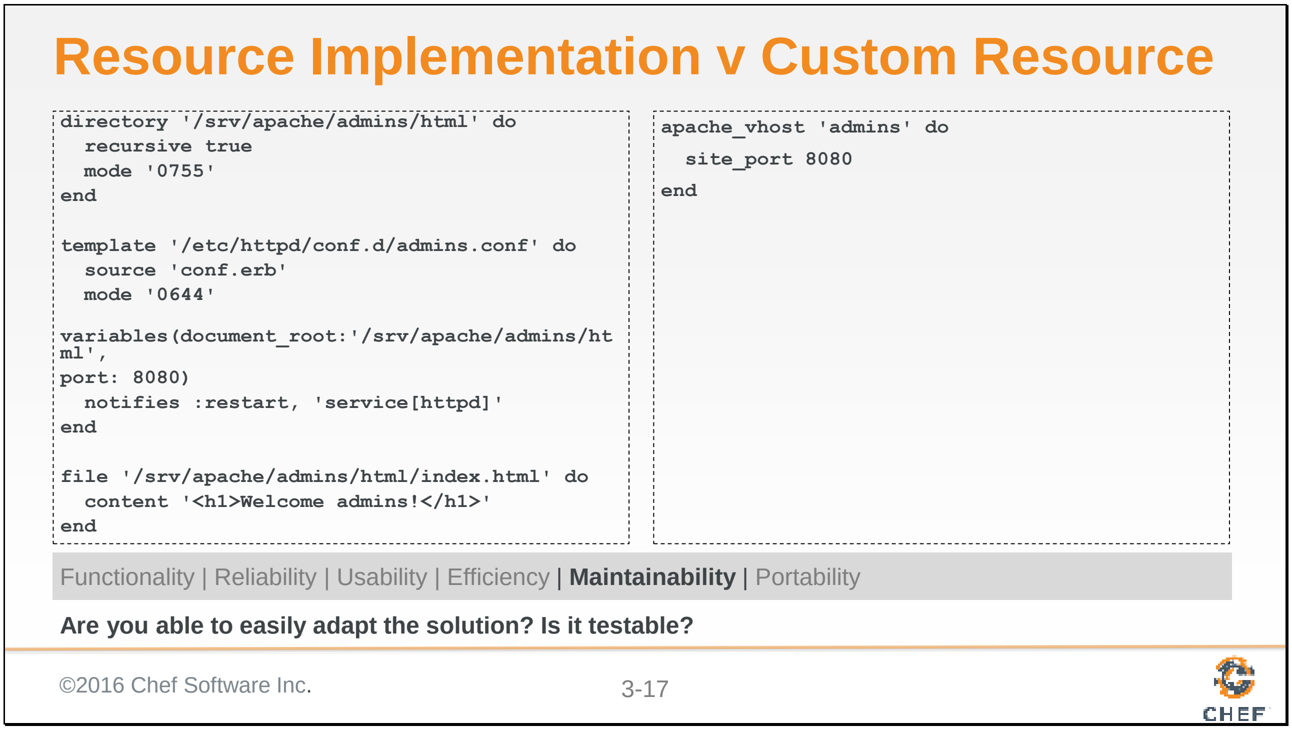
```
directory '/srv/apache/admins/html' do
  recursive true
  mode '0755'
end

template '/etc/httpd/conf.d/admins.conf' do
  source 'conf.erb'
  mode '0644'

variables(document_root:'/srv/apache/admins/ht
ml',
port: 8080)
  notifies :restart, 'service[httpd]'
end

file '/srv/apache/admins/html/index.html' do
  content '<h1>Welcome admins!</h1>'
end
```

```
apache_vhost 'admins' do
  site_port 8080
end
```

Functionality | Reliability | Usability | **Efficiency** | Maintainability | Portability

Does the code consume too many physical resources when it executes (e.g. CPU, memory)?

Slide 17



Resource Implementation v Custom Resource

```
directory '/srv/apache/admins/html' do
  recursive true
  mode '0755'
end

template '/etc/httpd/conf.d/admins.conf' do
  source 'conf.erb'
  mode '0644'

variables(document_root:'/srv/apache/admins/ht
ml',
port: 8080)
  notifies :restart, 'service[httpd]'
end

file '/srv/apache/admins/html/index.html' do
  content '<h1>Welcome admins!</h1>'
end
```

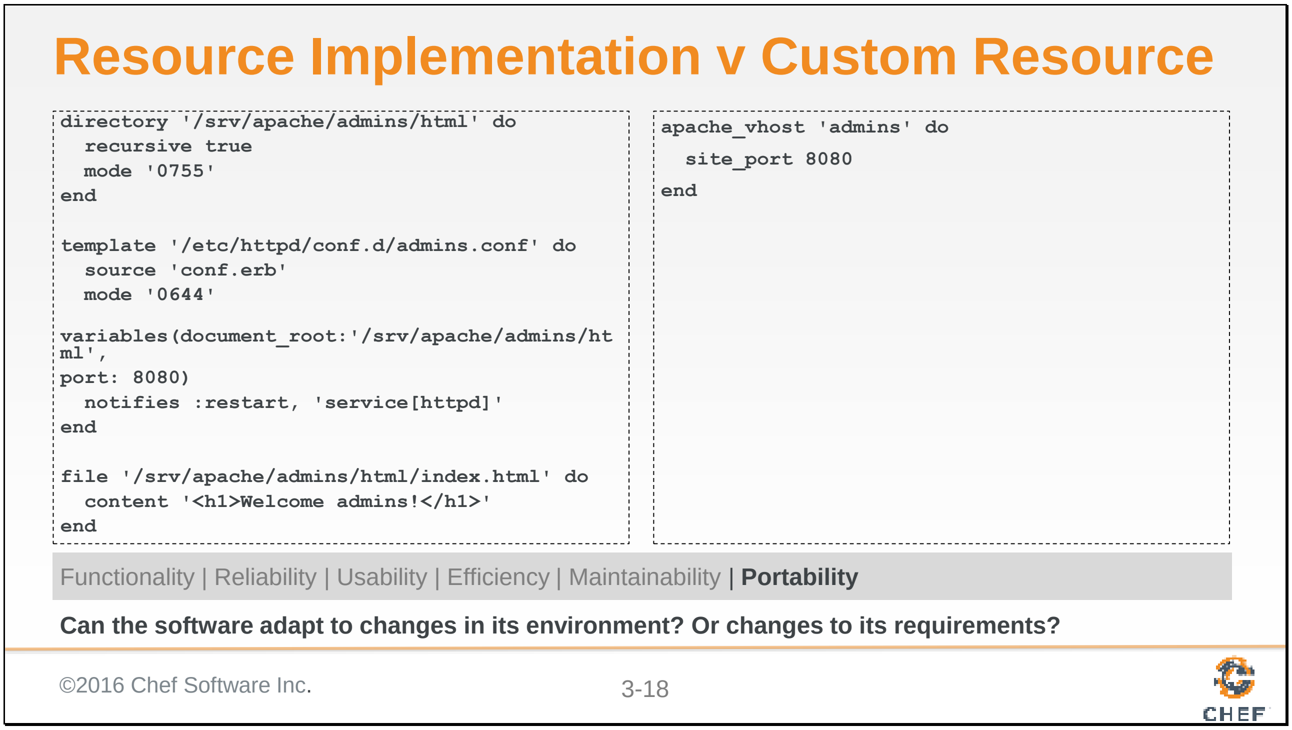
```
apache_vhost 'admins' do
  site_port 8080
end
```

Functionality | Reliability | Usability | Efficiency | **Maintainability** | Portability

Are you able to easily adapt the solution? Is it testable?

CHEF

Slide 18



Resource Implementation v Custom Resource

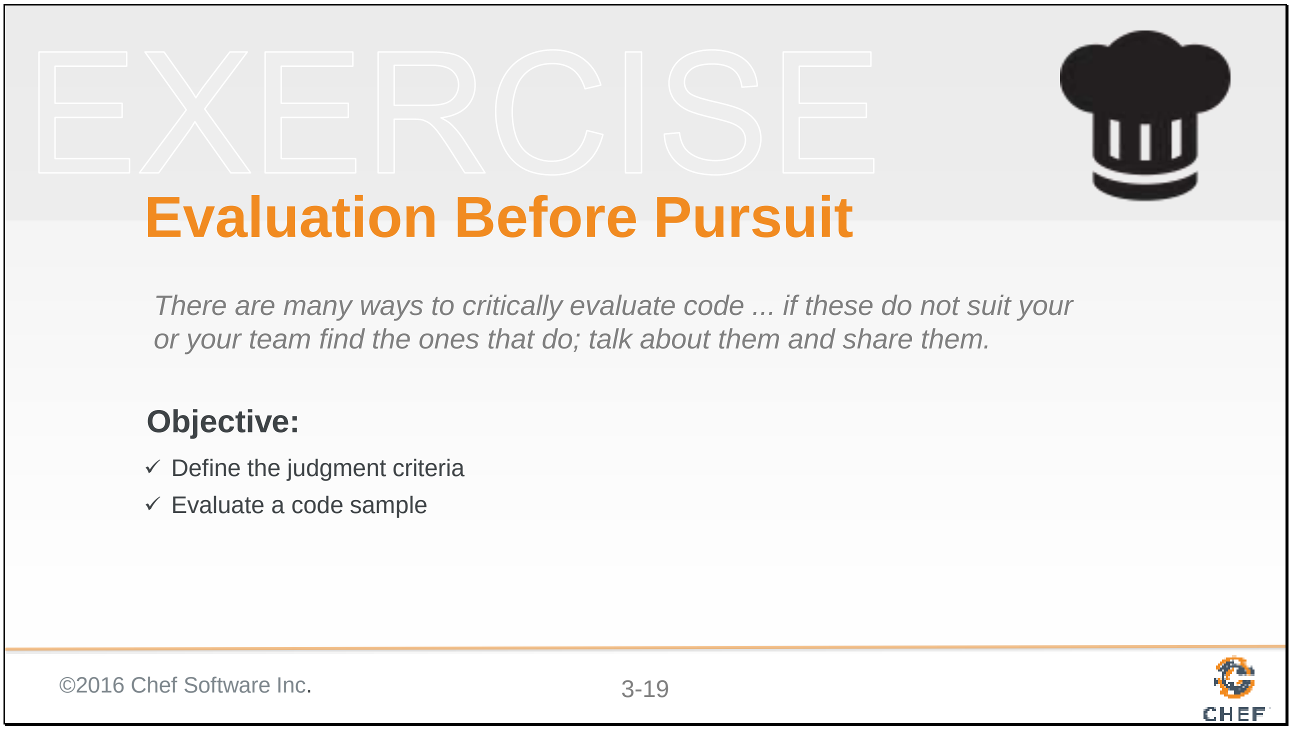
```
directory '/srv/apache/admins/html' do
  recursive true
  mode '0755'
end

template '/etc/httpd/conf.d/admins.conf' do
  source 'conf.erb'
  mode '0644'

variables(document_root:'/srv/apache/admins/ht
ml',
port: 8080)
  notifies :restart, 'service[httpd]'
end

file '/srv/apache/admins/html/index.html' do
  content '<h1>Welcome admins!</h1>'
end
```

```
apache_vhost 'admins' do
  site_port 8080
end
```

Functionality | Reliability | Usability | Efficiency | Maintainability | **Portability**

Can the software adapt to changes in its environment? Or changes to its requirements?

Slide 19



EXERCISE

Evaluation Before Pursuit

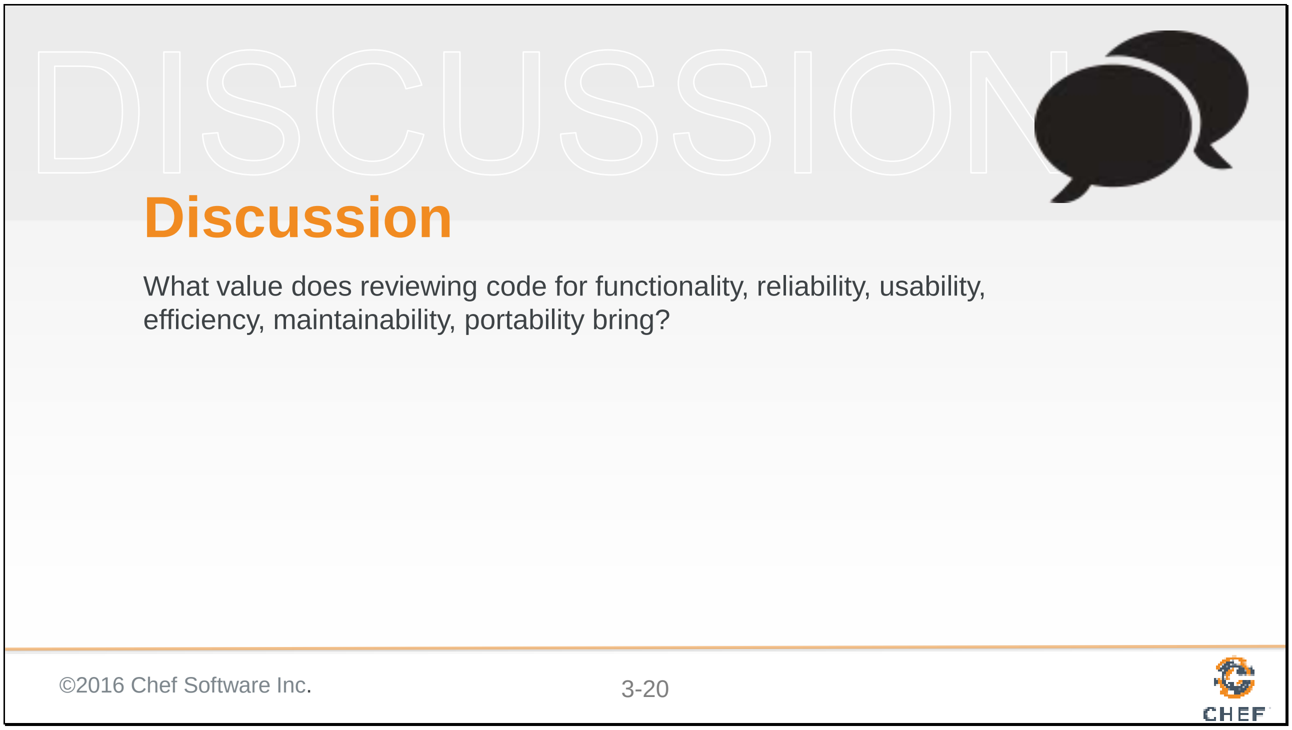
There are many ways to critically evaluate code ... if these do not suit your or your team find the ones that do; talk about them and share them.

Objective:

- ✓ Define the judgment criteria
- ✓ Evaluate a code sample

We've evaluated one code sample, let's look at a second one.

Slide 20


DISCUSSION

Discussion

What value does reviewing code for functionality, reliability, usability, efficiency, maintainability, portability bring?

Slide 21

DISCUSSION

Q&A

What questions can we answer for you?

Slide 22