

Cloud Application Workflow Development

Week 9

School of Software

Faculty of Engineering and Information Technology

University of Technology Sydney



SCHOOL OF SOFTWARE

Learning Objectives

- Understand Workflow
- Understand Workflow Rule
- Understand Workflow Actions
 - Workflow action as an “*email alert*”
 - Workflow action as “*field update*”
 - Workflow action as a “*task*”
 - “*Time-based Workflow*” action(s)
- Creating new email templates on Force.com platform

What is a workflow?

- Workflow is an inbuilt Force.com platform mechanism that can automatically carry out pre-defined set of activities (or actions), on behalf of the user.
- The activities that a workflow could carry out are :
 - (i) Automatically sending an email to selected user(s), when certain pre-defined conditions are met;
 - (ii) Automatically updating the field value of given record(s), when certain pre-defined conditions are met;
 - (iii) Automatically assigning a task to given user(s), when certain pre-defined conditions are met;
 - (iv) Automatically carrying out certain tasks (such as one of the above), after a pre-defined interval of time.

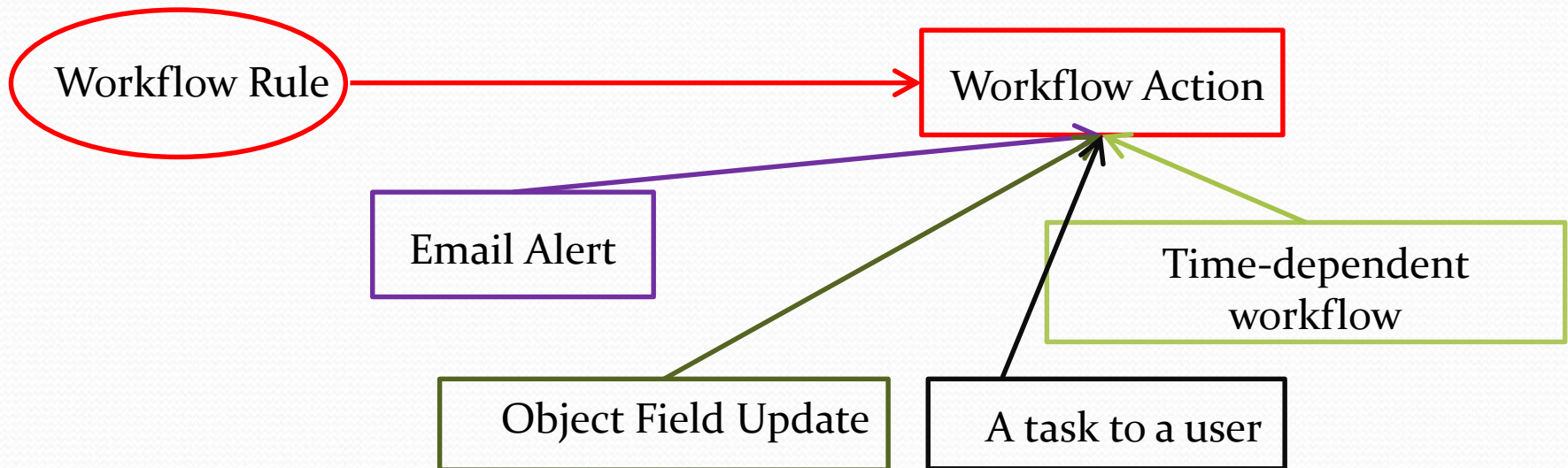
Workflow

- A workflow is comprised of the following:
 - Workflow Rule
 - Workflow Activity (ies) (or Workflow Action(s))
- A workflow rule specifies when the corresponding workflow should be triggered or activated.
 - A workflow rule is based on a single object (custom object or standard object in the Force platform)

Workflow actions

- A workflow action specifies the activities that need to be carried out, when the corresponding workflow is triggered
- Workflow Actions could result in:
 - (i) Workflow Email Alert: A workflow email alert sends an email to user(s), according to a specified email template.
 - (ii) Workflow Field Update: A workflow field update changes the value of a particular field in the record
 - (iii) Workflow Tasks: A workflow task assigns a task to a user, according to the specified workflow rule. The assigned user should be an existing user of the Force.com platform

Pictorial Representation of Workflows



Case Study - Student Application Review and Notification System

University “A” intends to implement an automated student application review and notification system.

When a student applies for admission, the application record is automatically received by the *University Student Services Officer (USSO)*. The USSO then needs to pass the application to the Faculty for assessment, and change the application status on the corresponding record. The application is received within the Faculty by the *Faculty Student Services Officer (FSSO)*. Based on the outcome of the assessment, the FSSO changes the application status in the corresponding student’s record to either “Offer a place (Accepted)” or “Rejected”. This information is sent to the USSO who subsequently notifies the student of the decision.

30 days after the decision to offer a place to a student, a reminder email is sent, requesting him to register for subjects in the coming semester.

Case Study (Continued)

- When a new student application is created, the “Application Status” field is set by default to “*New Application*”
- When the USSO (University Student Services Officer) receives a student application, it needs to pass it to the Faculty Student Services Officer (FSSO).
 - The USSO needs to change the “Application Status” field on the corresponding student record to “*Being Processed – With the FSSO*”
- Based on the outcome of the assessment process, the FSSO changes the “Application Status” on the corresponding student’s record to either “*Offer a place (Accepted)*” or “*Rejected*”.
 - This information needs to be sent to the USSO who subsequently notifies the students’ of the decision.
- 30 days after the decision to offer a place to a student, a reminder email, requesting them to register for subjects in the coming semester is sent.

Workflow Task

- A workflow task is:
 - Associated with a workflow rule (i.e. executed when the corresponding workflow rule is triggered)
 - Assigned to a user:
 - An email is automatically sent to that user notifying him/her of the task assignment;
 - Based on the notification the user may take appropriate follow-up action(s).

Creating a workflow rule

- To create a workflow rule
 - Setup → Build → Create → Workflow & Approvals → Workflow Rules → New Rule

The screenshot displays the Salesforce Admin console. On the left, the navigation menu is divided into 'Administer' and 'Build' sections. Under 'Build', the 'Create' sub-section is expanded, and 'Workflow & Approvals' is selected. The 'Workflow Rules' link is highlighted at the bottom of this menu. A blue arrow points from this link to the 'New Rule' button in the top right corner of the 'Workflow Rules' page. The page itself contains a table with one row: 'Send email to the hiring manager' under the 'Rule Name' column, and 'Edit | Del | Deactivate' under the 'Action' column. The 'Description' column is empty.

Action	Rule Name ↑	Description
Edit Del Deactivate	Send email to the hiring manager	

Step 1 (a): Select “Workflow Rules”

Step 1 (b): Select “New Rule” to create a new workflow rule

Creating a workflow rule

- Select the object on which you want to set the workflow rule

Workflow Rule
New Workflow Rule

Step 1: Select object

Select the object to which this workflow rule applies.

Select object

Student	▼
Contact	▲
Contract	
Customer	
Customer Record	
Employee	
Employment Website	
Event	
Idea	
Job Application	
Job Posting	
Lead	
Opportunity	
Opportunity Product	
Organization	
Position	
Product	
Review	
Site	
Solution	
Student	▼

Step 2: Select the object on which the workflow is to be defined

Creating a workflow rule

Enter the name, description, and criteria to trigger your workflow rule. In the next step, associate workflow actions with this workflow rule.

Edit Rule

Object Student

Rule Name **Student Assignment Rule**

Description This rule is to assign newly created student records to the FSSO for further processing

Step 3 : Specifying a name and description for the rule assigning newly created student records to Faculty Officer

Evaluation Criteria

Evaluate the rule when a record is:

- ☒ created
- ☐ created, and every time it's edited
- ☐ created, and any time it's edited to subsequently meet criteria

How do I choose?

Step 4 : We would like this rule be evaluated only when a new student record is created

Rule Criteria

Run this rule if the following criteria are met :

Field	Operator	Value	
Student: Application Status	equals	New Application	AND
--None--	--None--		AND
--None--	--None--		AND
--None--	--None--		AND
--None--	--None--		

[Add Filter Logic...](#)

Step 5: We would like this rule to be triggered when the current application status is "New Application"

Workflow Actions

Immediate Workflow Action: The actions specified under this area/section will be executed immediately as soon as the rule is triggered

Step 3: Specify Workflow Actions

Specify the workflow actions that will be triggered when the rule criteria are met. [See an example](#)

Rule Criteria	Student: Application Status EQUALS New Application
Evaluation Criteria	Evaluate the rule when a record is created

Immediate Workflow Actions

No workflow actions have been added.

Add Workflow Action ▼

Time-Dependent Workflow Actions

[See an example](#)



No workflow actions have been added. Before adding a workflow action, you must have at least one time trigger defined.

Add Time Trigger

Specify Workflow Action – New Task

Select the type of workflow action

Step 3: Specify Workflow Actions

Specify the workflow actions that will be triggered when the rule criteria are met. [See an example](#)

Rule Criteria	Student: Application Status EQUALS New Application
Evaluation Criteria	Evaluate the rule when a record is created

Immediate Workflow Actions

No workflow actions have been added.

Add Workflow Action

New Task

New Email Alert

New Field Update

New Outbound Message

Select Existing Action

Workflow Actions [See an example](#)

No workflow actions have been added. Before adding a workflow action, you must have at least one time trigger defined.

In our case study we need to assign the task of student record assessment to the FSSO.

Specifying a task as a workflow action

Step 1: Specify the name of the user to whom the task is to be assigned. This user should be an existing Force.com user

Step 2 : Specify a name for this task and subject for this task.

Save Save & New Cancel

Edit Task

Object	Student	Status	In Progress ▼
Assigned To	Faculty Student Services 🔍	Priority	High ▼
Subject	New application is awaitin		
Unique Name	New_application_is_await		
Due Date	Rule Trigger Date ▼		plus ▼ 5 days
Protected Component	<input type="checkbox"/>		

Step 4 : Specify the level of priority for this task assignment

Step 3 : Specify if the assignee should be notified of the task assignment and include a brief message for the assignee

Step 5 : Specify the due date for this task

Specify Workflow Action – Field Update

Select the type of workflow action

Step 3: Specify Workflow Actions

Specify the workflow actions that will be triggered when the rule criteria are met. [See an example](#)

Rule Criteria Student: Application Status EQUALS New Application
Evaluation Criteria Evaluate the rule when a record is created

Immediate Workflow Actions

Action	Type	Description
Edit Remove	Task	Application needs attention

Add Workflow Action ▼

- New Task
- New Email Alert
- New Field Update
- New Outbound Message
- Select Existing Action

Workflow Actions [See an example](#)

have been added. Before adding a workflow action, you must have at least one time trigger defined.

In our case study, once the task has been assigned to the FSSO, the corresponding “Application Status” field in the student record needs to be updated

Updating a field as a workflow action

Step 1: Specify a name for the workflow action

Step 2: Specify a description for the workflow

New Field Update

Define the field update, including the object associated with the workflow rule, approval process, or entitlement process, the field to update, and the field to update may be on a related object. Fields are shown only for the type that you select.

Field Update Edit

SaveSave & NewCancel

Identification

NameUpdate the application sta

Unique NameUpdate_the_application_s*i*

DescriptionThis workflow is used to automatically update the application status from "Being Processed - With University Student Service Officer" to "Being Processed - With Faculty Student Service Officer"

ObjectStudent

Field to UpdateApplication Status

Field Data Type

Standard FieldsOwnerStudent Name**Custom Fields**Academic Transcript DetailsApplication StatusApplication StatusDate of BirthEmail AddressPrevious Qualifications

Re-evaluate Workflow Rules after Field Change

Specify New Field Value

☐ The value below the current one

☒ A specific value--None--

Step 3: Select the field that needs to be updated as a result of the execution of the workflow

Updating a field as a workflow action

Field Update Edit Save Save & New Cancel

Identification

Name Update the application sta

Unique Name Update_the_application_s i

Description This workflow is used to automatically update the application status from "Being Processed - With University Student Service Officer" to "Being Processed - With Faculty Student Service Officer"

Object Student

Field to Update Application Status v

Field Data Type Picklist

Re-evaluate Workflow Rules after Field Change ☐

Specify New Field Value

Picklist Options

☐ The value above the current one

☐ The value below the current one

☒ A specific value

--None-- v

--None--

Accepted

Being Processed - With Faculty Student Service Officer

Being Processed -With University Student Service Officer

Rejected

Save

Step 5 : Press "Save" for saving the workflow action

Step 4 : Specify the new field value

Specify Workflow Action – Email Message

Select the type of workflow action

Step 3: Specify Workflow Actions

Specify the workflow actions that will be triggered when the rule criteria are met. [See an example](#)

Rule Criteria Student: Application Status EQUALS New Application
Evaluation Criteria Evaluate the rule when a record is created

Immediate Workflow Actions

Action	Type	Description
Edit Remove	Task	Application needs attention
Edit Remove	Field Update	Update the application status

As a result of the execution of a workflow rule you could send an email to selected person(s).

Add Workflow Action ▼

- New Task
- New Email Alert
- New Field Update
- New Outbound Message
- Select Existing Action

[See an example](#)

have been added. Before adding a workflow action, you must have at least one time trigger defined.

Sending an email as a workflow action

New Email Alert

Create an email alert to associate with one or more workflow rules, approval processes, or entitlement processes. When changing an email alert, any modifications will apply to all associated workflow rules, approval processes, or entitlement processes.

Email Alert Edit

Save

Save & New

Cancel

Edit Email Alert

Description Status of your application at University A

Unique Name Status_of_your_application_a

Object Student

Email Template Acknowledgement

Protected Component ☐

Recipient Type Search: Email Field

for:

Recipients

Available Recipients

--None--

Selected Recipients

Email Field: Email address
Role: Faculty Student Services Officer

Add



Remove



Step 3(c) : If the user you wish to send an email to, is not a member of the Force.com platform, you may simply specify his/her email address here

You can enter up to five (5) email addresses to be notified.

Additional Emails

Step 1 : Specify the title of the email to be sent as a result of this workflow

Step 2 : Select the template for the email. You may define your own template

Step 3(a) : You can select any existing user on the Force.com platform

Step 3(b) : You can add or remove the recipients to whom the email should be sent

Workflow rules and Workflow actions

Multiple workflow actions can be associated with a single workflow rule

Step 3: Specify Workflow Actions

Specify the workflow actions that will be triggered when the rule criteria are met. [See an example](#)

Rule Criteria Student: Application Status EQUALS New Application
Evaluation Criteria Evaluate the rule when a record is created

Immediate Workflow Actions

Action	Type	Description
Edit Remove	Task	Application needs attention
Edit Remove	Email Alert	Status of your application at University A
Edit Remove	Field Update	Update the application status

Add Workflow Action ▼

Workflow Rules – Activation and Deactivation

Workflows can be de-activated as well. A de-activated workflow does not perform its corresponding actions

You need to activate workflow rules for them to carry out their corresponding actions

All Workflow Rules

Configure your organization's workflow by creating workflow rules. Each workflow rule consists of:

- Criteria that cause the workflow rule to run.
- Immediate actions that execute when a record matches the criteria. For example, salesforce.com can automatically send an email that notifies the account team when a new high-value opportunity is created.
- Time-dependent actions that queue when a record matches the criteria, and execute according to time triggers. For example, salesforce.com can automatically send an email reminder to the account team if a high-value opportunity is still open ten days before the close date.

Quick Tips

- [Getting Started](#)
- [Resources on CRM Con](#)
- [Useful Sample Workflow](#)
- [Video Tutorial \(English C](#)

View: All Workflow Rules [Create New View](#)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Other All

New Rule

Action	Rule Name ↑	Description	Object
Edit Del Activate	Assign Position to Recruiter		Position
Edit Del Deactivate	Send Rejection Letter	Send a rejection letter when a hiring manager changes the status of a job application to Rejected	Job Application
Edit Del Activate	Student Assignment Rule	This rule will be used to assign newly created student records to faculty officer	Student

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Other All

Workflow - Time

- *Time-based Workflow Action* are used specify workflow actions that need to occur after (or before) a specific time
- Example:
 - 30 days after the decision to offer a place to a student, a reminder email, requesting them to register for subjects in the coming semester.
- A given workflow rule can have both workflow action(s) and time-dependent workflow actions(s)

Example - Specifying Workflow rule

Edit Rule


Object Student

Rule Name Workflow rule to be trigger

Description

Evaluation Criteria

Evaluate the rule when a record is:

- ☐ created
- ☐ created, and every time it's edited
- ☒ created, and any time it's edited to subsequently meet criteria 

How do I choose?

Rule Criteria

Run this rule if the following :

Field

Operator

Value



AND

Adding a time trigger to workflow

Specify the workflow actions that will be triggered when the rule criteria are met. [See an example](#)


Rule Criteria	Student: Application Status EQUALS Application accepted
Evaluation Criteria	Evaluate the rule when a record is created, and any time it's edited to subsequently meet criteria

Immediate Workflow Actions

No workflow actions have been added.

Add Workflow Action ▼

Time-Dependent Workflow Actions [See an example](#)

 No workflow actions have been added. Before adding a workflow action, you must have at least one time trigger defined.

Add Time Trigger

Step 1: Select “Add Time Trigger” if you wish to specify a time-dependent workflow

Workflow - Time

Time-Dependent Workflow Action: The actions specified under this area will be executed after the specified time delay

Step 3: Specify Workflow Actions

Specify the workflow actions that will be triggered when the rule criteria are met. [See an example](#)

Rule Criteria Student: Application Status EQUALS New Application
Evaluation Criteria Evaluate the rule when a record is created

Immediate Workflow Actions

Action	Type	Description
Edit Remove	Task	Application needs attention
Edit Remove	Email Alert	Status of your application at University A
Edit Remove	Field Update	Update the application status

Add Workflow Action ▼

Time-Dependent Workflow Actions [See an example](#)

i No workflow actions have been added. Before adding a workflow action, you must have at least one time trigger defined.

Add Time Trigger

Step 1: Select “Add Time Trigger” if you wish to specify a time-dependent workflow

Specifying the time trigger

Workflow Time Trigger Edit

Workflow Rule Student Assignment Rule

30 Days After Rule Trigger Date

Hours

Days

Save Cancel

Workflow Time Trigger Edit

Workflow Rule Student Assignment Rule

30 Days After Rule Trigger Date

Before

After

Save Cancel

Workflow Time Trigger Edit

Workflow Rule Student Assignment Rule

30 Days After Rule Trigger Date

Rule Trigger Date

Rule Trigger Date

Student: Created Date

Student: Date of Birth

Student: Last Modified Date

Step 2: Specify the time trigger. When do you wish the workflow action to be executed?

Time-based Workflow actions

Step 2: Specify the type of workflow action that you wish to be performed after the time trigger. [See an example](#)

Rule Criteria	Student: Application Status EQUALS Application accepted
Evaluation Criteria	Evaluate the rule when a record is created, and any time it's edited to subsequently meet

Immediate Workflow Actions

No workflow actions have been added.

Add Workflow Action ▼

Time-Dependent Workflow Actions

[See an example](#)

 30 Days After Rule Trigger Date [Edit](#) | [Delete](#)

No workflow actions have been added to this time trigger.

Add Workflow Action ▼

New Task

[New Email Alert](#)

New Field Update

New Outbound Message

Time-based Workflow actions

Email Alert Edit

Save

Save & New

Cancel

Step 3: Specify the details of the workflow action.

Edit Email Alert

Description | Do not miss out on enrolment at University A

Unique Name | Do_not_miss_out_on_enr ⓘ

Object | Student

Email Template | Enrolment Reminder ⓘ

Protected Component ☐

Recipient Type | Search: Email Field ▼ for: Find

Recipients

Available Recipients

--None--

Add



Remove

Selected Recipients

Email Field: Email address

Step 3(a): Specify a meaningful title for the email

Step 3(b): Specify an email template to be used. You may define your own email template.

Step 3(c): Specify the recipients for this email.

You can enter up to five (5) email addresses to be notified.

Additional Emails

Workflow rule, workflow action and time-dependent workflow actions

Step 3: Specify Workflow Actions

Multiple workflow actions and multiple time-dependent workflow actions can be associated with a given workflow rule.

Specify the workflow actions that will be triggered when the rule criteria are met. [See an example](#)

Rule Criteria Student: Application Status EQUALS New application
Evaluation Criteria Evaluate the rule when a record is created

Immediate Workflow Actions

Action	Type	Description
Edit Remove	Task	Admission evaluation for new application
Edit Remove	Email Alert	Status of your application at University A
Edit Remove	Field Update	Update student record

Add Workflow Action ▼

Time-Dependent Workflow Actions [See an example](#)

 30 Days After Rule Trigger Date [Edit](#) | [Delete](#)

Action	Type	Description
Edit Remove	Email Alert	Do not miss out on enrolment at University A

Add Workflow Action ▼

Email Templates

- Force.com platform provides a number of in-built email templates that can be used to send email to users as an result of the workflow actions
- You can design or create own templates to suit your niche requirements.

Creating a new email template

- To create a new email template
 - Setup → Administer → Communication Templates → Email Templates

Force.com Home

Administer

- ▶ Manage Users
- ▶ Manage Apps
- ▶ Company Profile
- ▶ Security Controls
- ▶ Domain Management
- ▼ Communication Templates
 - Letterheads
 - Email Templates**
 - Mail Merge Templates
- ▶ Translation Workbench
- ▶ Data Management
- ▶ Mobile Administration
- ▶ Desktop Administration
- ▶ Email Administration
- ▶ Google Apps

Build

Below is a list of all your email templates in the folder selected. Click the new button to create a new text, HTML

Folder: Unfiled Public Email Templates ▼ [Create New Folder](#)

[New Template](#)

Action	Email Template Name ↑	Template Type	Avail.
Edit Del	Marketing: Product Inquiry Response	Text	
Edit Del	Sales: New Customer Email	Text	
Edit Del	SUPPORT: Self-Service New Comment Notification (SAMPLE)	Text	
Edit Del	SUPPORT: Self-Service New User Login Information (SAMPLE)	Text	
Edit Del	SUPPORT: Self-Service Reset Password (SAMPLE)	Text	
Edit Del	Support: Case Assignment Notification	Text	
Edit Del	Support: Case Created (Phone Inquiries)	Text	
Edit Del	Support: Case Created (Web Inquiries)	Text	
Edit Del	Support: Case Response	Text	
Edit Del	Support: Escalated Case Notification	Text	
Edit Del	Support: Escalated Case Reassignment	Text	
Edit Del	Support: Self-Service New Login and Password	Text	
Edit Del	Support: Self-Service Reset Password	Text	

Design your own email templates

Creating a new email template

Available Merge Fields

Select Field Type

Student Fields ▼

Select Field

First Name ▼

Copy Merge Field Value

udent_c.First_Name_c}

Copy and paste the merge field value into your template below.

You may refer to the fields of given object in the email.

Step 2. Text Email Template: New Template

The folder in which this email template will be placed

Email Template Information

Folder

Unfiled Public Email Templates ▼

Available For Use

☐

Is this template available for use?

Email Template Name

Enrolment reminder

The name of this email template

Template Unique Name

Enrolment_reminder



Encoding

General US & Western Europe (ISO-8859-1, ISO-LATIN-1) ▼

The encoding format to be used when sending the message

Description

Subject

Reminder to enrol at University A

Email Body

Dear {!Student__c.First_Name_c} {!Student__c.Surname_c}

Congratulations on being offered a place at University A. This is a reminder that our classes are due to start soon. We thereby request you to enrolment as soon possible in order to avoid dissatisfaction.

Places are limited and are filling up fast. Looking forward to welcome you to University A

University A management

The body of the email

A brief description about the email template

Mention the subject of the email template

Conclusion

- Workflow
 - Workflow Rule
 - Workflow Actions
- Specification of Workflow rules on Force.com platform
- Specification of the following types of workflow actions on the Force.com platform
 - Workflow action as an “*email alert*”
 - Workflow action as “*field update*”
 - Workflow action as a “*task*”
 - “*Time-based Workflow*” actions
- Creating new email templates on Force.com



Reading

Books

1. McGuire, C., Roth, C., Carroll, D., and Tran, N. (2013),
Force.com Fundamentals: An Introduction – Chapter 8