

REVIEW LESSON

MTA Course: Windows Development Fundamentals

Lesson name: Windows Development Fundamentals 1.1

Topic: Identify Windows application types (One 50-minute class period)

File name: WinDevFund_RL_1.1

Lesson Objective:

1.1: Identify Windows application types. *This objective may include but is not limited to:* Windows® Forms, Windows Presentation Foundation (WPF), Windows Services, and Win32® applications.

Preparation Details

Prerequisite student experiences and knowledge

This MTA Certification Exam Review lesson is written for students who have learned about Windows application programming. Students who do not have the prerequisite knowledge and experiences cited in the objective will find additional learning opportunities using resources such as those listed in the Microsoft resources and Web links at the end of this review lesson.

Instructor preparation activities

- Make copies of Student Activity WinDevFund_SA_1.1.

Resources, software, and additional files needed for this lesson:

- WinDevFund_PPT_1.1
- WinDevFund_SA_1.1
- WinDevFund_SA_1.1_Key

Teaching Guide

Essential Vocabulary:

Win32 (or Windows API)—the application programming interface (API; or “framework”) for creating Windows applications in C/C++, including applications with graphical user interface (GUI) elements, such as windows and buttons.

Windows Forms application—an application that uses Forms to create a GUI with common Windows features, such as buttons, textboxes, and menus.

Windows Presentation Foundation (WPF) application—an application that uses Extensible Application Markup Language (XAML) to create rich, multimedia user interfaces.

Windows Services application—a long-running application that does not show a user interface.

Lesson Sequence

Activating prior knowledge/lesson staging (Anticipatory Set; 10 minutes)

1. Student prompt (available in the Microsoft PowerPoint® file): On a sheet of paper, write down the different “application template” choices you have under the “Windows” category when you create a project in Microsoft Visual Studio®, and explain what each choice is.
2. Give students a few minutes to respond, allowing them to work until they have finished.
3. As time permits, call on a few students to report to the group with their responses.

Lesson activity (40 minutes)

1. Teacher Instruction (20 minutes)
 - Use the included PowerPoint slideshow to review the different types of Windows applications.
 - At the end of the slideshow, ask the students answer the Review Questions. Small group discussions or a “think-pair-share” approach may be beneficial.
 - Show the question and give the students 1 minute to process the question and come up with answers.
 - Then give the students 2 minutes to discuss answers with a partner.
 - Finally, have each pair of students share their answers with the whole group.
 - Repeat for each additional review question.

2. Guided Practice (20 minutes; please see the “additional notes” section regarding this assignment)
 - Students complete the worksheet, identifying the different types of Windows applications and deciding which application types are appropriate for different situations.
 - If time allows, you may review all or part of the worksheet, discussing student responses to the questions.

Assessment/lesson reflection (10 minutes)

1. Use a “ticket out the door” to encourage the students to process the review and to give an opportunity for additional questions. The last slide in the PowerPoint facilitates this exercise.
 - **Note:** a “ticket out the door” is an informal assessment strategy used to provide closure and give the teacher an additional opportunity to check for understanding. Students complete the exercise and give it to the teacher as they leave the room. This ensures that every student participates.
2. On the same paper they used for the Anticipatory Set, tell students to summarize the differences between Windows Forms, WPF, and Windows Services applications.
 - Be sure to give ample time for students to write their summaries.
 - If time allows, pick a few students to read their summaries.
3. At the bottom of the page, tell students to write down any questions they have or any topics about which they would like more assistance
4. After class, look through the student responses and follow up with any student requiring additional help.

Microsoft resources and Web links**MSDN: Overview of Windows-based Applications**

(<http://msdn.microsoft.com/en-us/library/5b13a7k4.aspx>)

MSDN: Getting Started with Windows Forms

<http://msdn.microsoft.com/en-us/library/ms229601.aspx>)

MSDN: Overview of the Windows API

[http://msdn.microsoft.com/en-us/library/aa383723\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/aa383723(VS.85).aspx))

MSDN: Windows Presentation Foundation

<http://msdn.microsoft.com/en-us/library/ms754130.aspx>)

MSDN: Introduction to Windows Service Applications

(<http://msdn.microsoft.com/en-us/library/d56de412.aspx>)

Suggested best practices:

- It may be helpful to think of examples of programs the students are familiar with, and use those to point out differences between Windows Forms and WPF. Keep in mind that many applications previously implemented with Forms feature WPF in more recent releases. For example, Visual Studio 2010 features an editor built on WPF technology. Many programs that students use regularly (such as the Microsoft Office® product line) traditionally had a “Windows Forms” look and feel, but they may now feature a richer interface that may not be as clearly identifiable for students.
- Try to find examples that your students can recognize and associate with the different application types.

Additional notes to the teacher:

- The worksheet asks students to identify the best application type for specific situations. It should be noted that in many cases, this is a difficult cognitive task that draws on many different factors. However, it is beneficial to engage students in this activity so that they process their learning and work through the differences between the options. It also helps to ask students to justify their responses—“*why* would you choose WPF instead of Windows Forms for this application?” Those questions can generate valuable discussions that help students engage in the content, and they help teachers identify confusing or misunderstood concepts.