



Event-Driven Programming

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Most modern computer programs that people use have **Graphical User Interfaces** (GUIs).

A GUI has icons on the computer screen and a mouse (or other device) to control a pointer that can be used to operate the computer.



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1 Musical Instruments Executive Sales Summary

Sales Objectives and Implementation

We must walk a difficult tightrope to adapt our business to new technologies, without losing our stronghold among professional musicians. We will need to let our market share drop a bit in the slow-growth acoustics segments of the market, while we significantly increase our share in keyboards, speakers, and other electronic equipment. We want to maintain continuity and tradition even while the industry sorts itself out with changes in market and technology. There will always be a traditional segment, and Encore will always be there.

Marketing Strategy

Our strategy focuses on key opinion leaders to maintain our position in the traditional music sector, while simultaneously developing new technologies that will protect our long-term position and may eventually lead us to new markets:



Sales Objectives and Implementation.docx - Microsoft Word

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1 Musical Instruments Executive Sales Summary

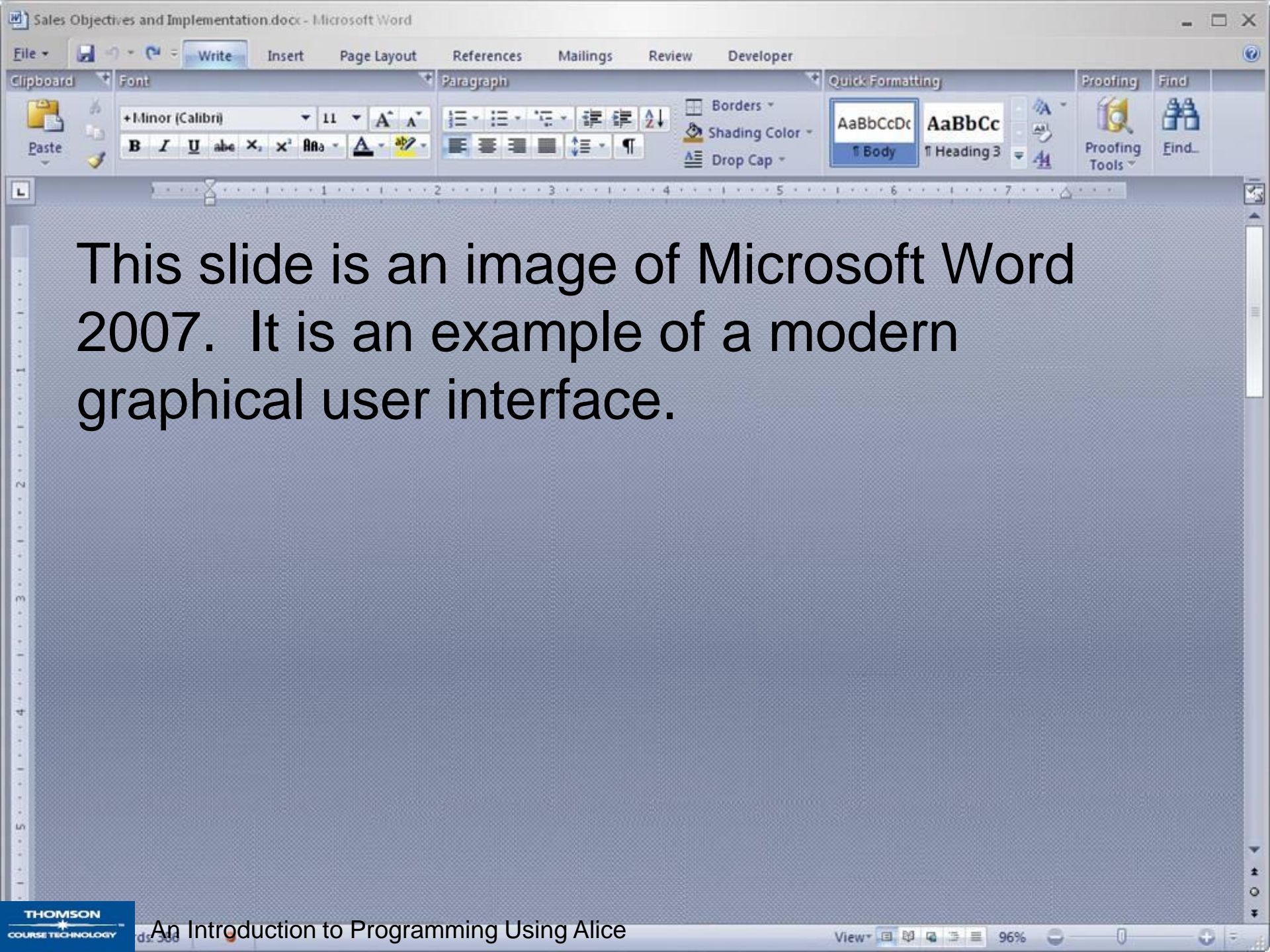
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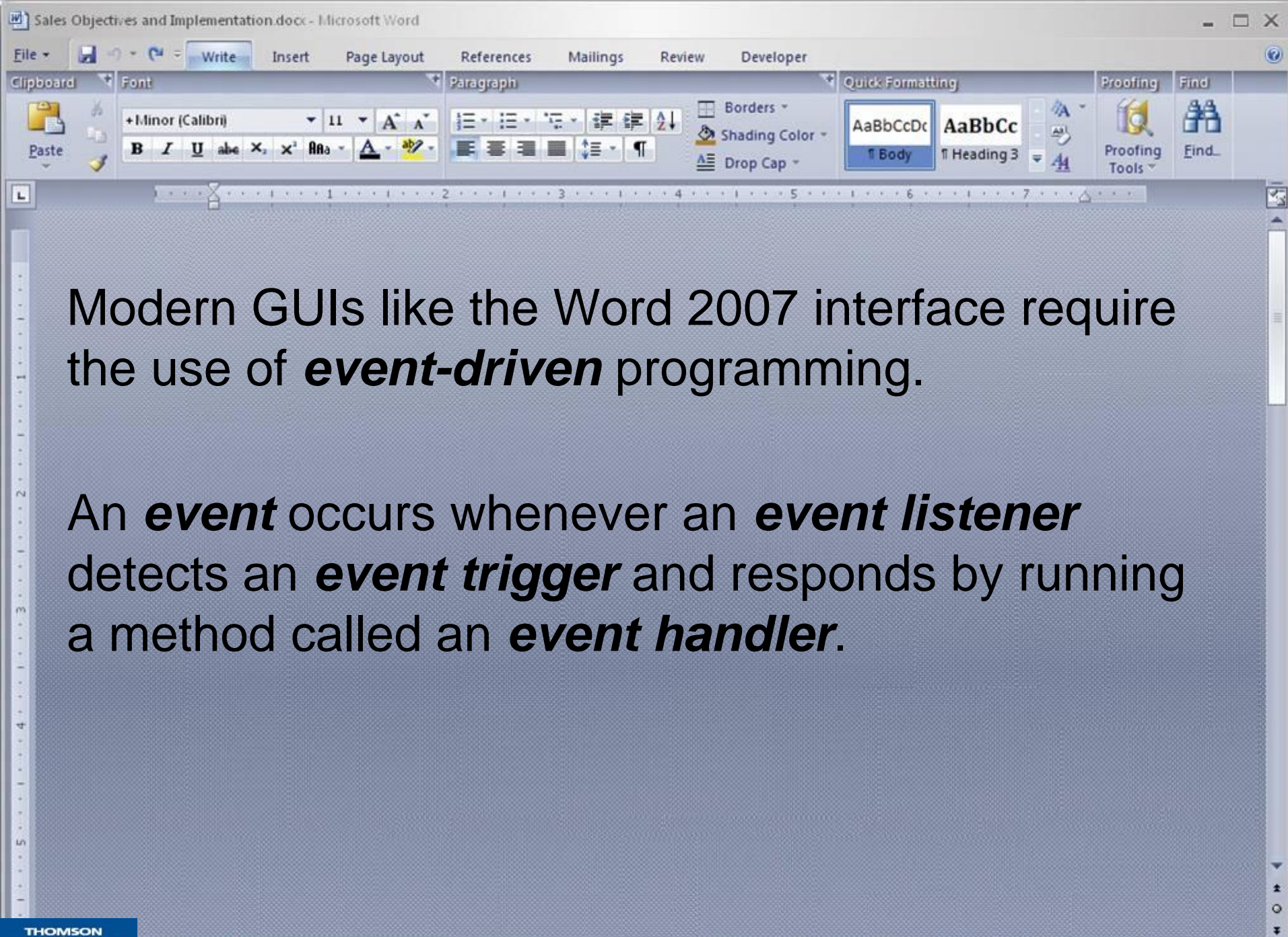
Marketing Strategy

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This slide is an image of Microsoft Word 2007. It is an example of a modern graphical user interface.



Modern GUIs like the Word 2007 interface require the use of ***event-driven*** programming.

An ***event*** occurs whenever an ***event listener*** detects an ***event trigger*** and responds by running a method called an ***event handler***.

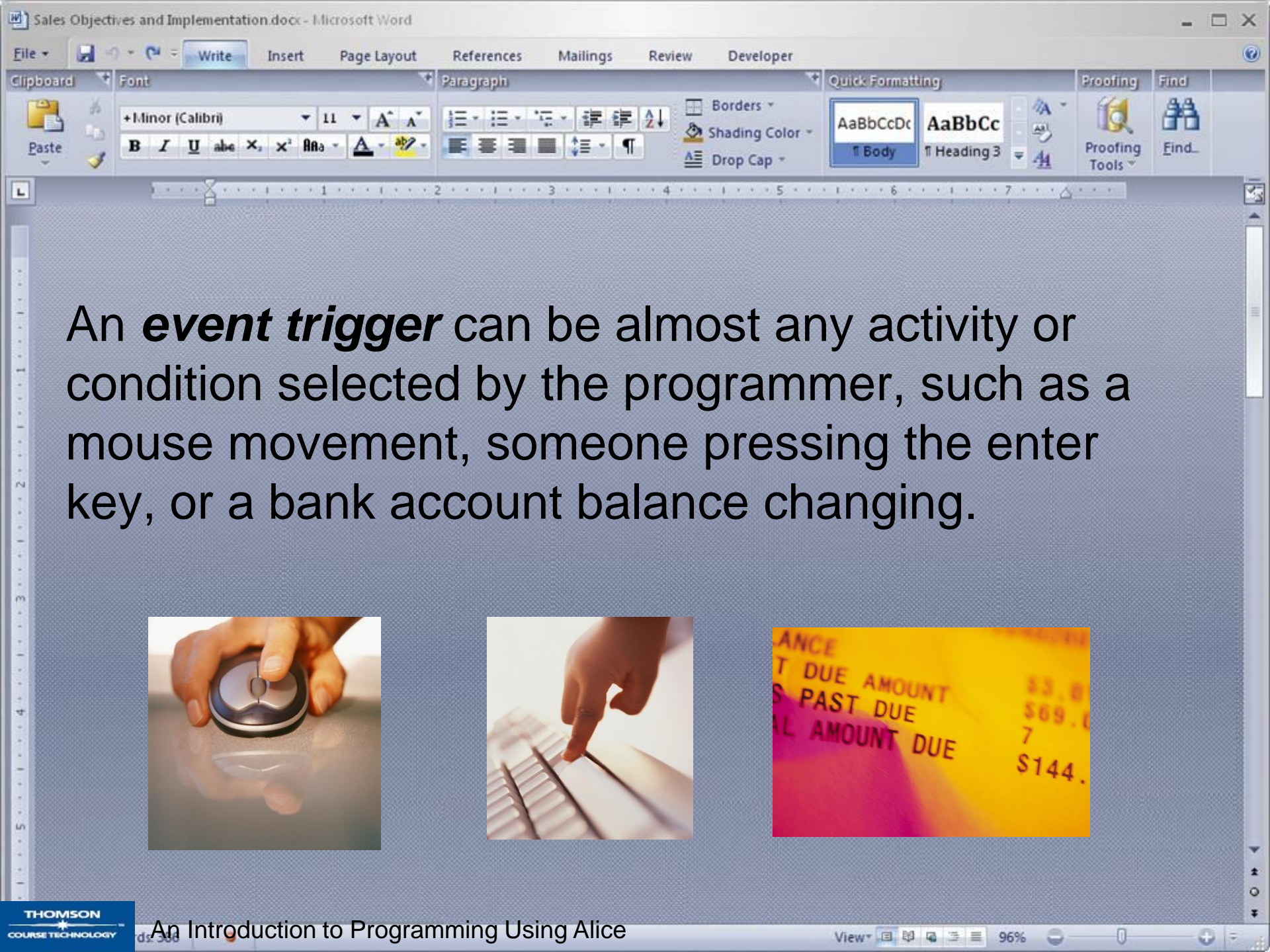


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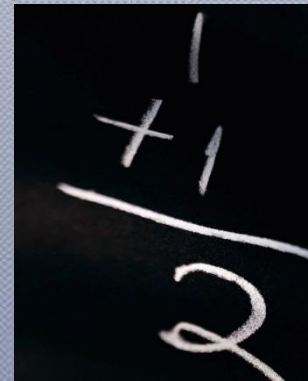
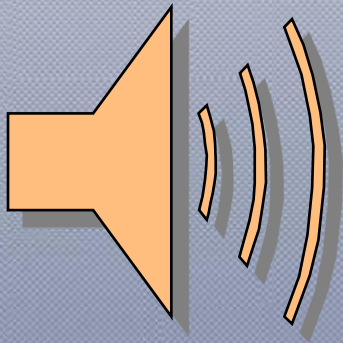
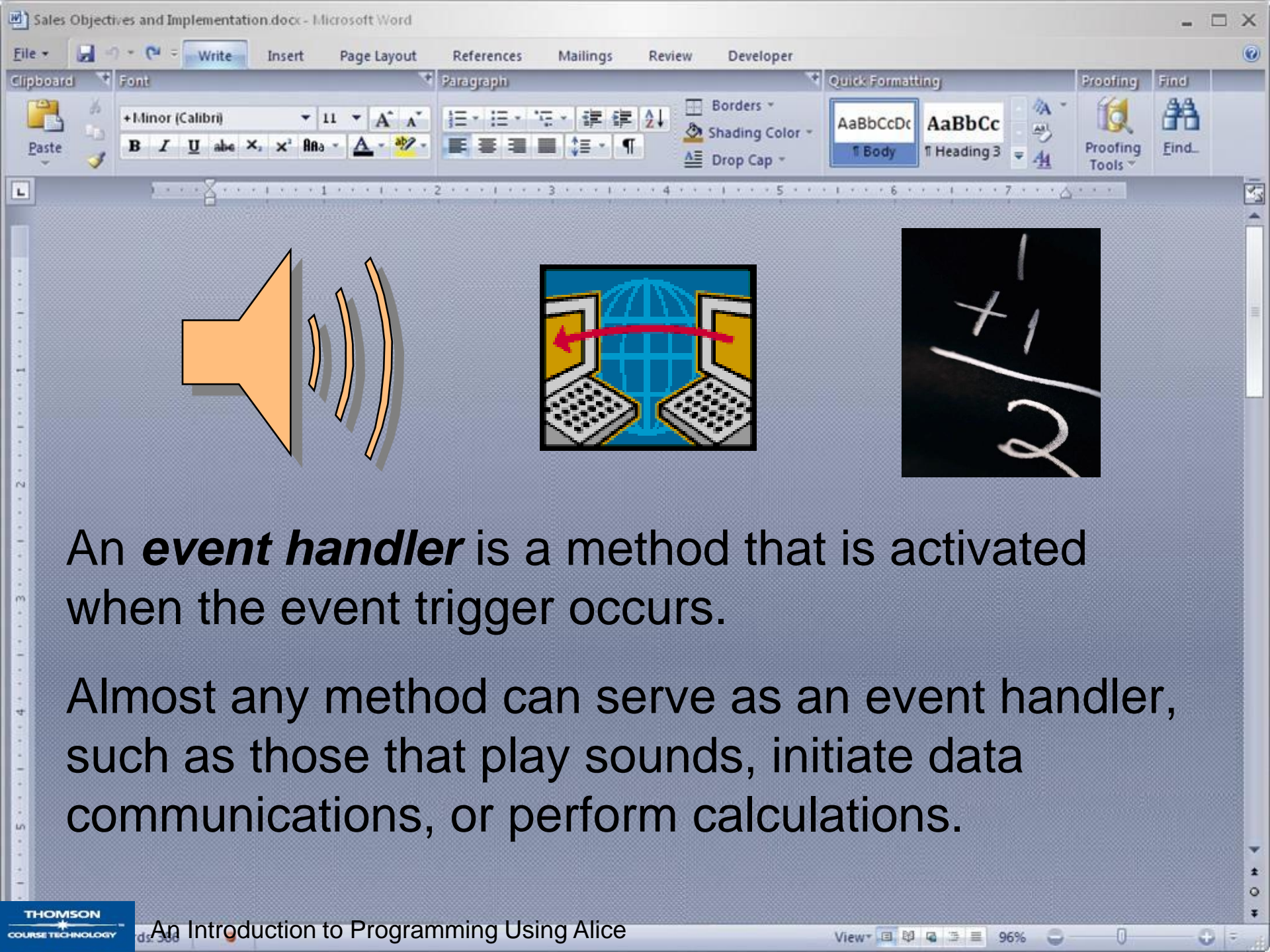
An ***event*** occurs whenever an ***event listener*** detects an ***event trigger*** and responds by running a method called an ***event handler***.

Modern operating systems and programming languages contain facilities to let programmers set up event listeners.



An ***event trigger*** can be almost any activity or condition selected by the programmer, such as a mouse movement, someone pressing the enter key, or a bank account balance changing.





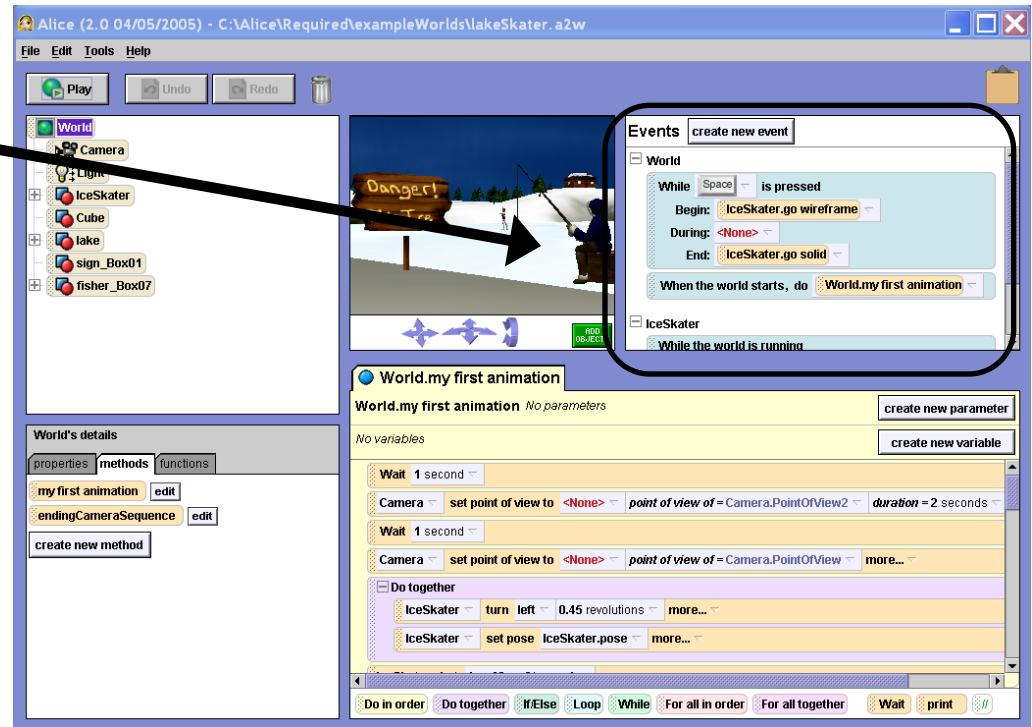
An ***event handler*** is a method that is activated when the event trigger occurs.

Almost any method can serve as an event handler, such as those that play sounds, initiate data communications, or perform calculations.

Events in Alice

Alice events are created in the **events area** of the standard Alice interface.

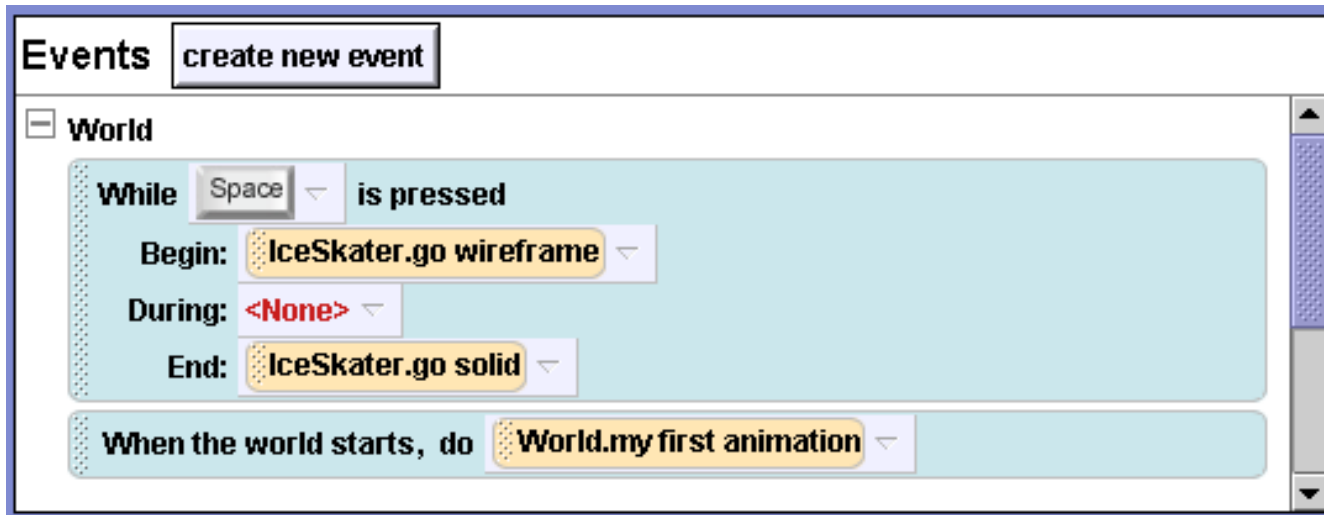
events area



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events area



Events in Alice



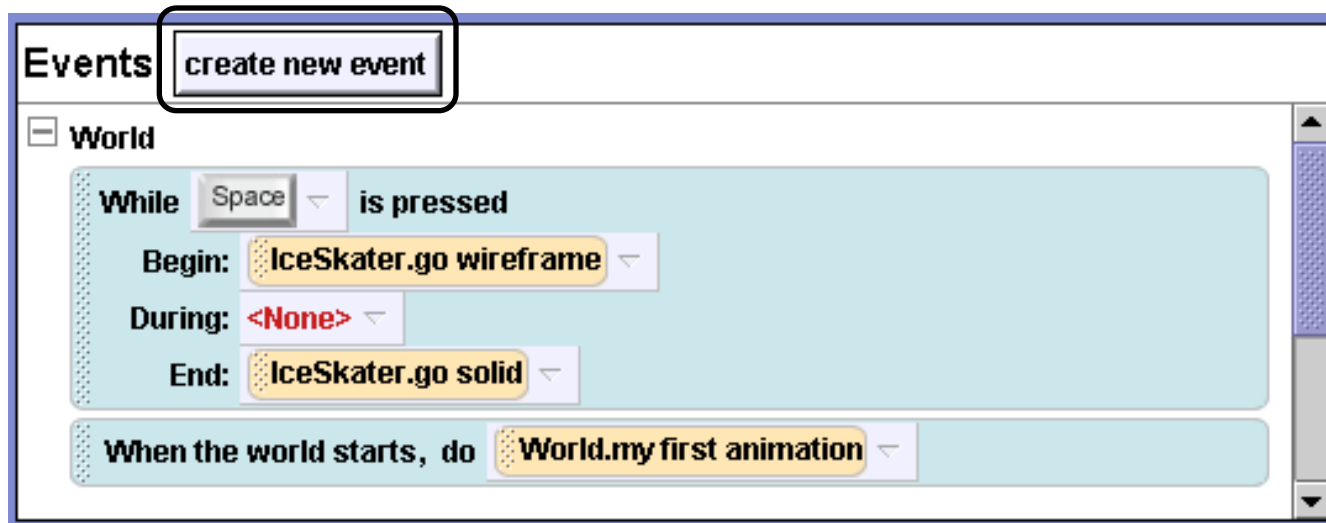
An Alice event tile specifies the event trigger and the event handler.

In this example, the event trigger is the spacebar, being pressed and the event handler is the iceSkater's simpleSpin method.

Events in Alice

The ***create new event*** button will reveal a menu with nine different event types.

create new event button



Events in Alice

The ***create new event*** button will reveal a menu with nine different event types.

When the world starts

When a key is typed

When the mouse is clicked on something

While something is true

When a variable changes

Let the mouse move <objects>

Let the arrow keys move <subject>

Let the mouse move the camera

Let the mouse orient the camera

Events in Alice

A programmer can pick the event type that has the desired event trigger.

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Events in Alice

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Some event types also have built-in event handlers...



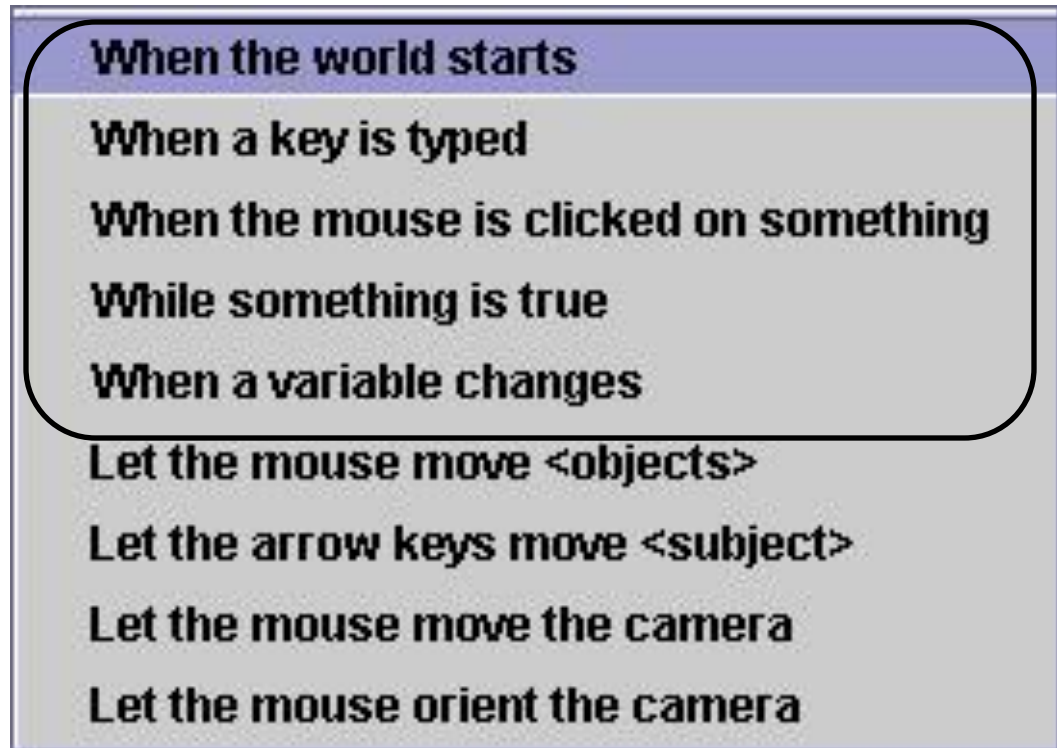
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Events in Alice

A programmer can pick the event type that has the desired event trigger.

Some event types also have built-in event handlers...

In other cases, programmers must specify the handler.



Play Undo Redo

World

- Camera
- Light
- IceSkater
- Cube
- lake
- sign_Box01
- fisher_Box07



Events create new event

World

While Space is pressed

- Begin: IceSkater.go wireframe
- During: <None>
- End: IceSkater.go solid

When the world starts, do World.my first animation

World's details

properties methods functions

my first animation edit

endingCameraSequence edit

create new method

World.my first animation No parameters

No variables

Wait 1 second

Camera

Wait 1 second

Camera

Do together

- IceSkater
- IceSkater set pose IceSkater.pose more...
- IceSkater.skate howManySteps = 1
- IceSkater.simpleSpin

Do in order Do together If/Else Loop While For all in order For all together Wait print

Event handlers are specified by dragging method tiles from the details area and dropping them into the event tile.

Event-Drive Programming

- Events are an important part of Alice programming, allowing the creation of interactive worlds with keyboard and mouse user controls.
- Most modern programming languages allow programmers to add events to new software.
- Events can be used for many other purposes, such as controlling burglar alarms, checking remote sensors, or checking for system events, like printers running out of paper.
- Events are an important part of modern computer programming.