

Advance Programming Techniques (APT)

Lecture # 24

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Keyboard Events

- Keyboard events allow your application to react when the user types or presses keys
- They are essential for:
 - Validating user input
 - Creating shortcuts (e.g., Ctrl + S)
 - Games (movement using arrows/WASD)
 - Text processing apps
 - Hotkeys and commands

Keyboard Events

- In WinForms, there are **three primary keyboard events**:
 - KeyDown
 - KeyPress
 - KeyUp
- Each event fires at a different stage of the key press

The Three Key Events

- KeyDown (Fires First)
 - Triggered when a key is *pressed down*
 - Provides full keyboard info (like Ctrl, Alt, Shift)
 - Good for hotkeys and shortcuts
- KeyPress (Fires Second)
 - Triggered when a *character* is typed
 - Works only with *printable characters* (letters, digits, symbols)
 - Does NOT detect keys like Shift, Ctrl, F1, Arrow keys
- KeyUp (Fires Last)
 - Triggered when the key is *released*
 - Good for actions that should happen after typing

Order of Events

- When you press a key:
 - KeyDown fires first
 - KeyPress fires second (only for printable characters)
 - KeyUp fires last
- Example: We press "A"

KeyDown → KeyPress → KeyUp

Practical Examples

- Restricting Input (Allow only numbers)
- Using Arrow Keys (KeyDown Example)
- Detecting Shortcut Keys (Ctrl + S)
- KeyPreview – Very Important!
- Handling Enter Key to Trigger a Button
- Complete KeyDown Example