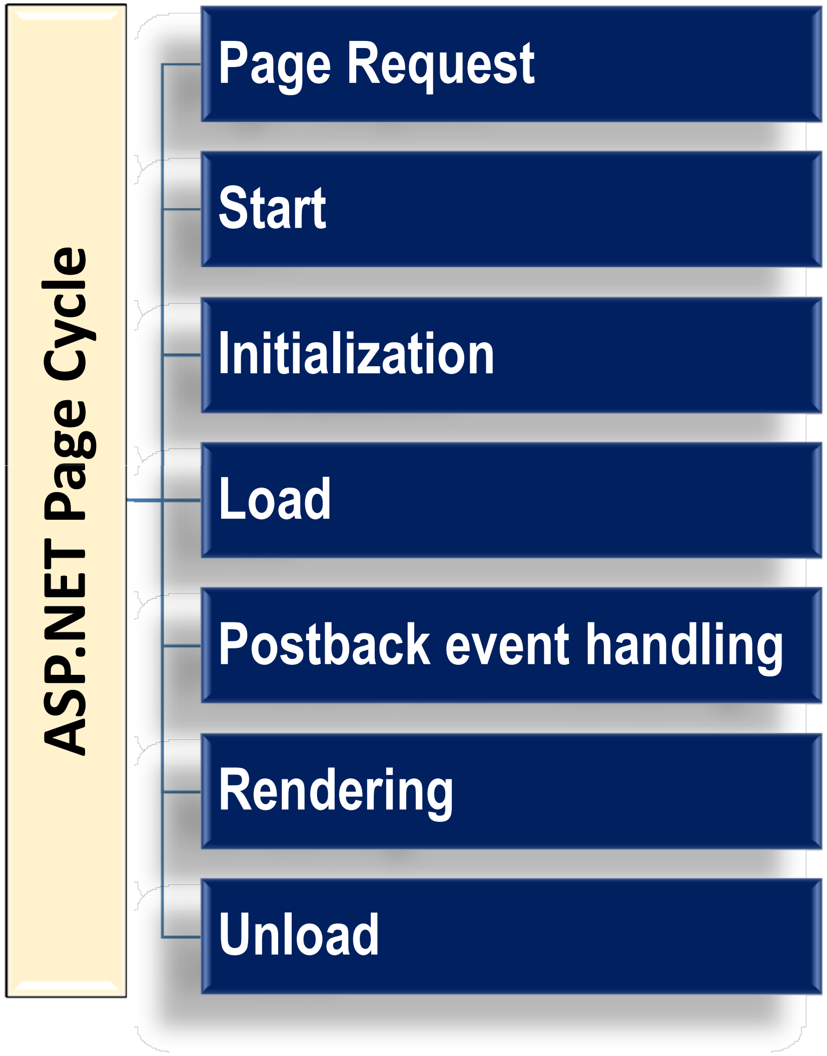
ASP.NET Page Life Cycle

- When an ASP.NET page runs, the page goes through a life cycle in which it performs a series of processing steps.
- These include initialization, instantiating controls, restoring and maintaining state, running event handler code, and rendering.
- It is important for you to understand the page life cycle so that you can write code at the appropriate life-cycle stage for the effect you intend.
- Some parts of the life cycle occur only when a page is processed as a postback. For postbacks, the page life cycle is the same during a partial-page postback (as when you use an UpdatePanel control) as it is during a full-page postback.

Stages of ASP.NET Page Life Cycle



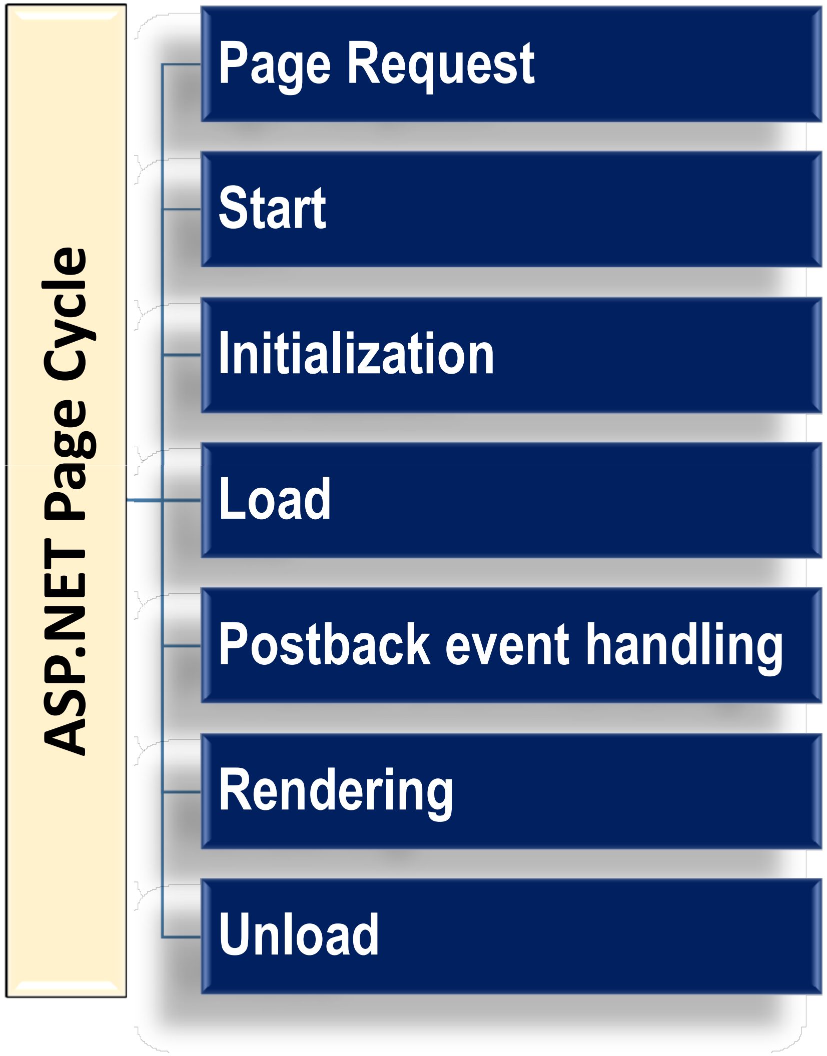
ASP.NET Page Cycle

- Page Request
- Start
- Initialization
- Load
- Postback event handling
- Rendering
- Unload

Page Request

- ○ The page request occurs before the page life cycle begins.
- ○ When the page is requested by a user, ASP.NET determines whether the page needs to be parsed and compiled (therefore beginning the life of a page), or whether a cached version of the page can be sent in response without running the page.

Stages of ASP.NET Page Life Cycle



Start

- ○ In the start stage, page properties such as Request and Response are set.
- ○ At this stage, the page also determines whether the request is a postback or a new request and sets the IsPostBack property.
- ○ The page also sets the UICulture property.

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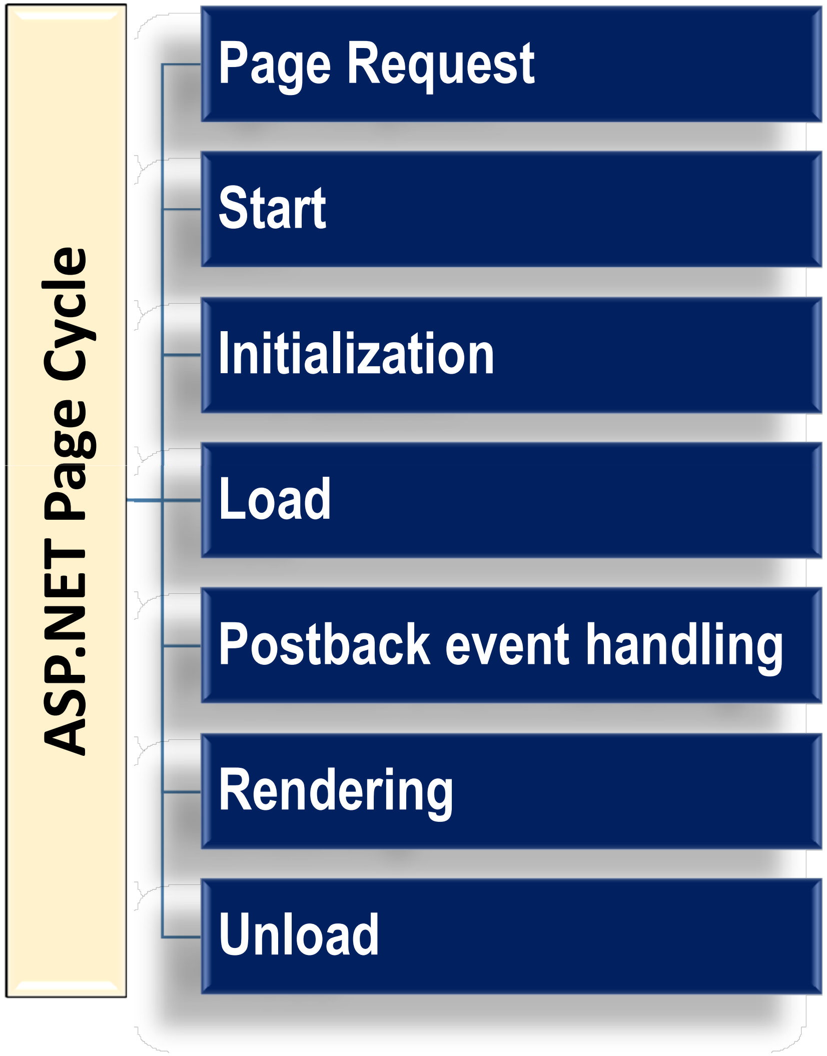

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Initialization

- During page initialization, controls on the page are available and each control's UniqueID property is set.
- A master page and themes are also applied to the page if applicable.
- If the current request is a postback, the postback data has not yet been loaded and control property values have not been restored to the values from view state.

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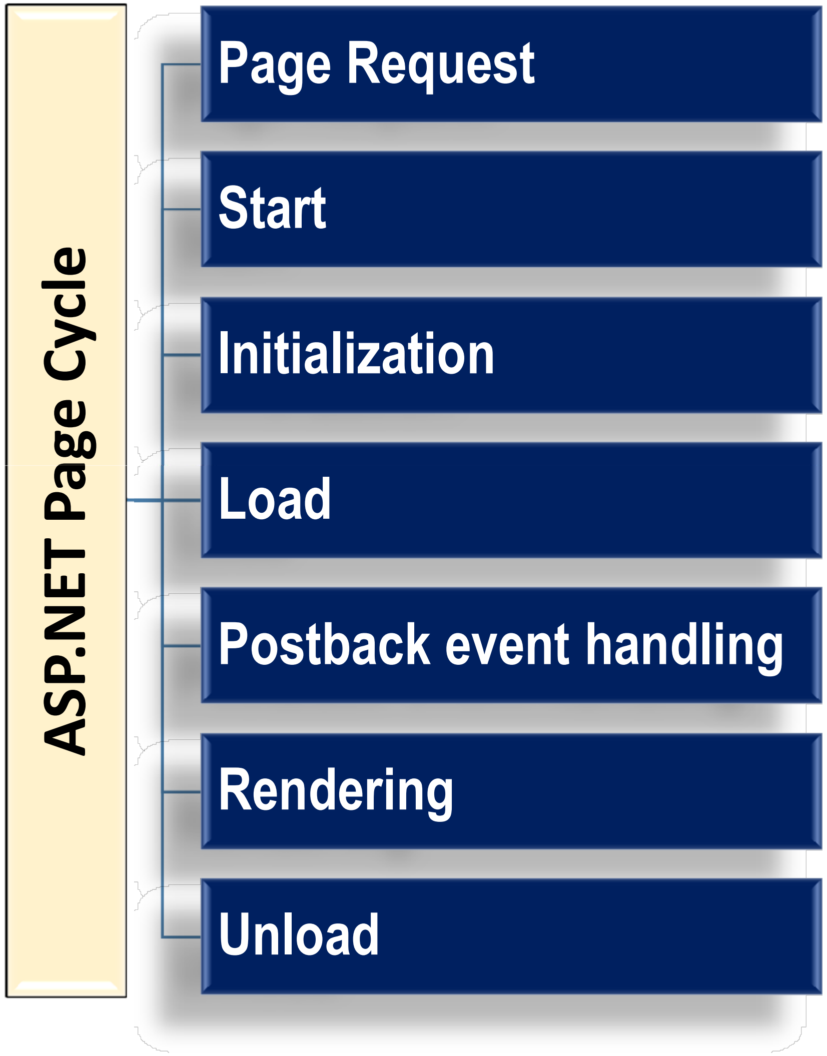

Load

- During load, if the current request is a postback, control properties are loaded with information recovered from view state and control state.

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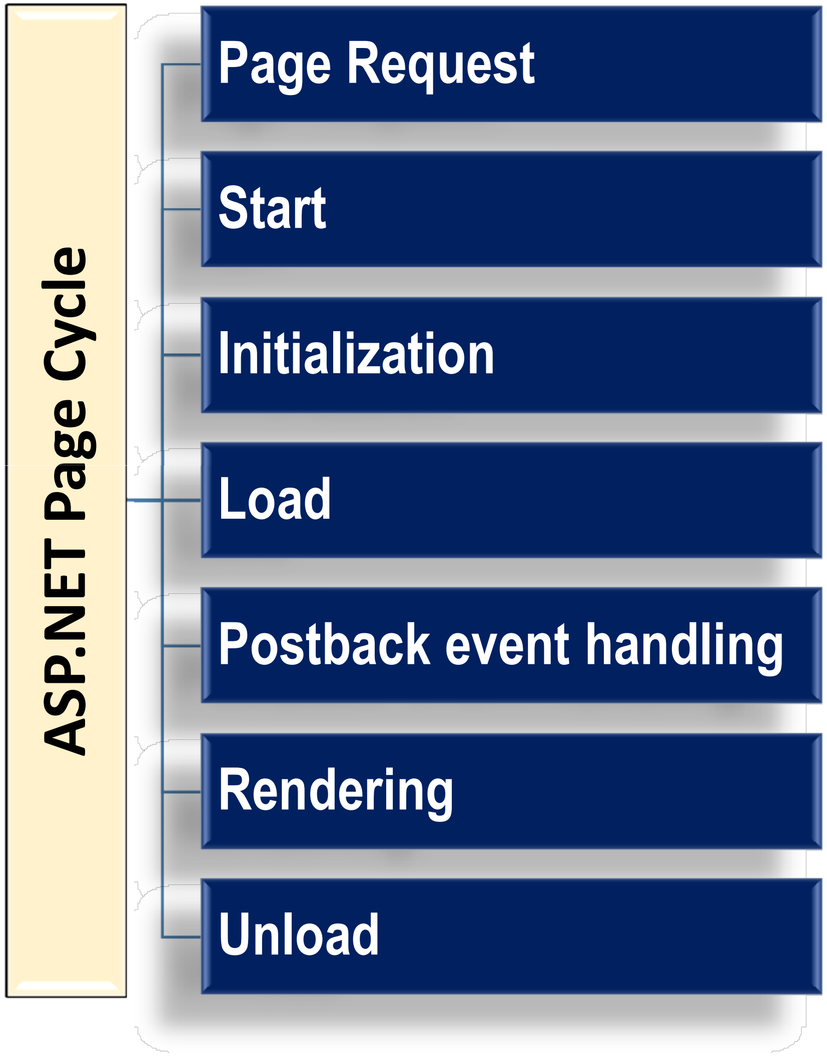

Poastback Event Handling

- If the request is a postback, control event handlers are called.
- After that, the Validate method of all validator controls is called, which sets the IsValid property of individual validator controls and of the page.

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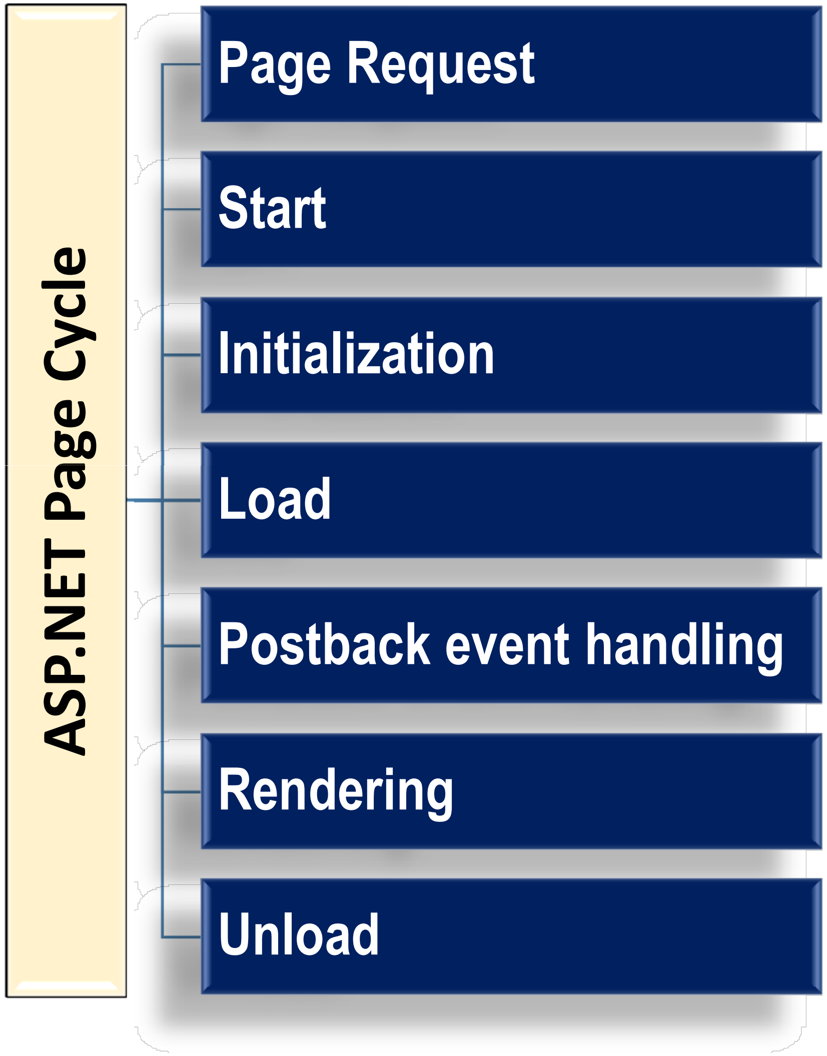

Rendering

○ Before rendering, view state is saved for the page and all controls.

○ During the rendering stage, the page calls the Render method for each control, providing a text writer that writes its output to the OutputStream object of the page's Response property.

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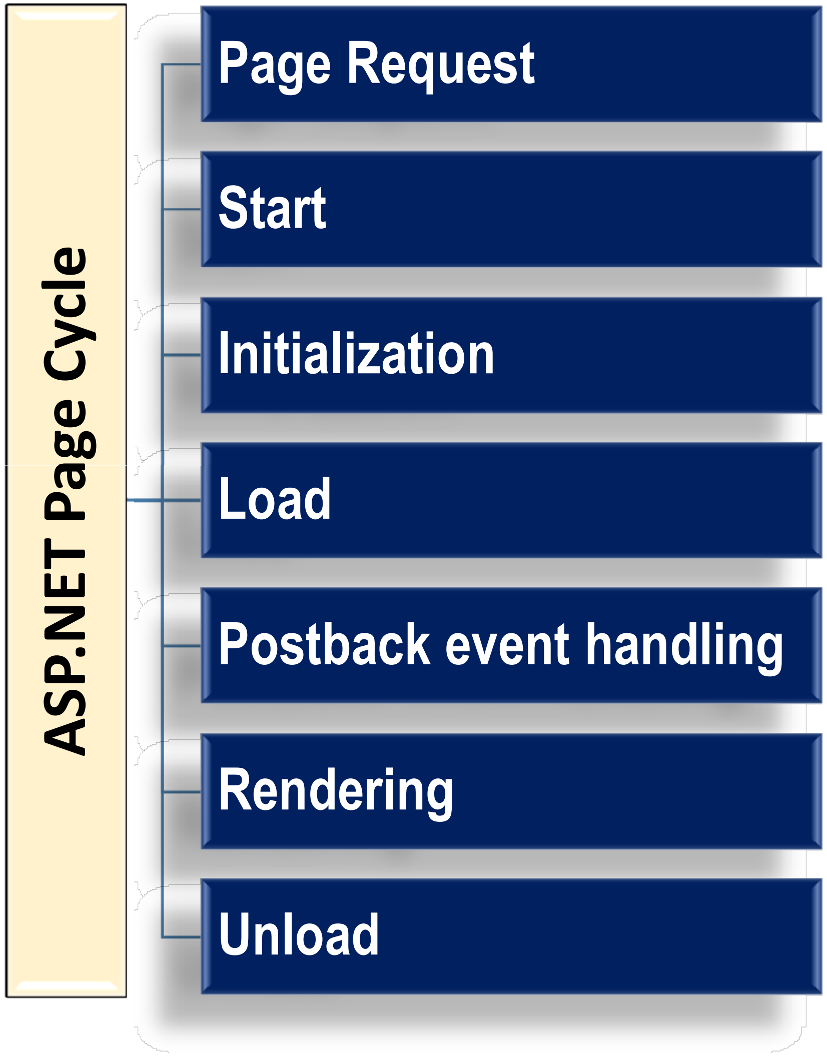

Unload

- The Unload event is raised after the page has been fully rendered, sent to the client, and is ready to be discarded.
- At this point, page properties such as Response and Request are unloaded and cleanup is performed.

Events of ASP.NET Page Life Cycle

PreInit

- Check for the IsPostBack property to determine whether this is the first time the page is being processed.
- Create or recreate dynamic controls.
- Set master page dynamically.
- Set the Theme property dynamically.
- Read or set profile property values.

If Request is postback:

- The values of the controls have not yet been restored from view state.
- If you set control property at this stage, its value might be overwritten in the next event.

Events of ASP.NET Page Life Cycle

Init

- In the Init event of the individual controls occurs first, later the Init event of the Page takes place.
- This event is used to initialize control properties.

InitComplete

- Tracking of the ViewState is turned on in this event.
- Any changes made to the ViewState in this event are persisted even after the next postback.

PreLoad

- This event processes the postback data that is included with the request.

Events of ASP.NET Page Life Cycle

Load

- In this event the Page object calls the OnLoad method on the Page object itself, later the OnLoad method of the controls is called.
- Thus Load event of the individual controls occurs after the Load event of the page.

ControlEvents

- This event is used to handle specific control events such as a Button control's Click event or a TextBox control's TextChanged event.

In case of postback:

- If the page contains validator controls, the Page.IsValid property and the validation of the controls takes place before the firing of individual control events.

Events of ASP.NET Page Life Cycle

LoadComplete

- This event occurs after the event handling stage.
- This event is used for tasks such as loading all other controls on the page.

PreRender

- In this event the PreRender event of the page is called first and later for the child control.

Usage:

- This method is used to make final changes to the controls on the page like assigning the DataSourceId and calling the DataBind method.

Events of ASP.NET Page Life Cycle

PreRenderComplete

- This event is raised after each control's PreRender property is completed.

SaveStateComplete

- This is raised after the control state and view state have been saved for the page and for all controls.

RenderComplete

- The page object calls this method on each control which is present on the page.
- This method writes the control’s markup to send it to the browser.

Unload

- This event is raised for each control and then for the Page object.