Creational Design Patterns

Builder

What is it?

-> is a creational design pattern that allows the construction of complex objects step-by- step.

-> it separates the construction of a complex object from its representation, enabling the same construction process to create different representations.

When to use it?

- in case of 'telescoping' constructor

- if different representations of an object are needed

- in case of complex objects

.NET implementation

```csharp
public class Report
{
    public string? Header { get; set; }
    public string? Footer { get; set; }
    public string? Content { get; set; }
    public string? Charts { get; set; }
    public string? Tables { get; set; }

    public class Builder
    {
        private Report report = new Report();

        public Builder SetHeader(string header)
        {
            report.Header = header;
            return this;
        }

        public Builder SetFooter(string footer)
        {
            report.Footer = footer;
            return this;
        }

        public Builder SetContent(string content)
        {
            report.Content = content;
            return this;
        }

        public Builder SetCharts(string charts)
        {
            report.Charts = charts;
            return this;
        }

        public Builder SetTables(string tables)
        {
            report.Tables = tables;
            return this;
        }

        public Report Build()
        {
            return report;
        }
    }
}
```

.NET implementation

```csharp
Report report = new Report.Builder()
    .SetHeader("This is the header")
    .SetContent("This is the content")
    .SetFooter("This is the footer")
    .SetTables("This is the table")
    .Build();
```