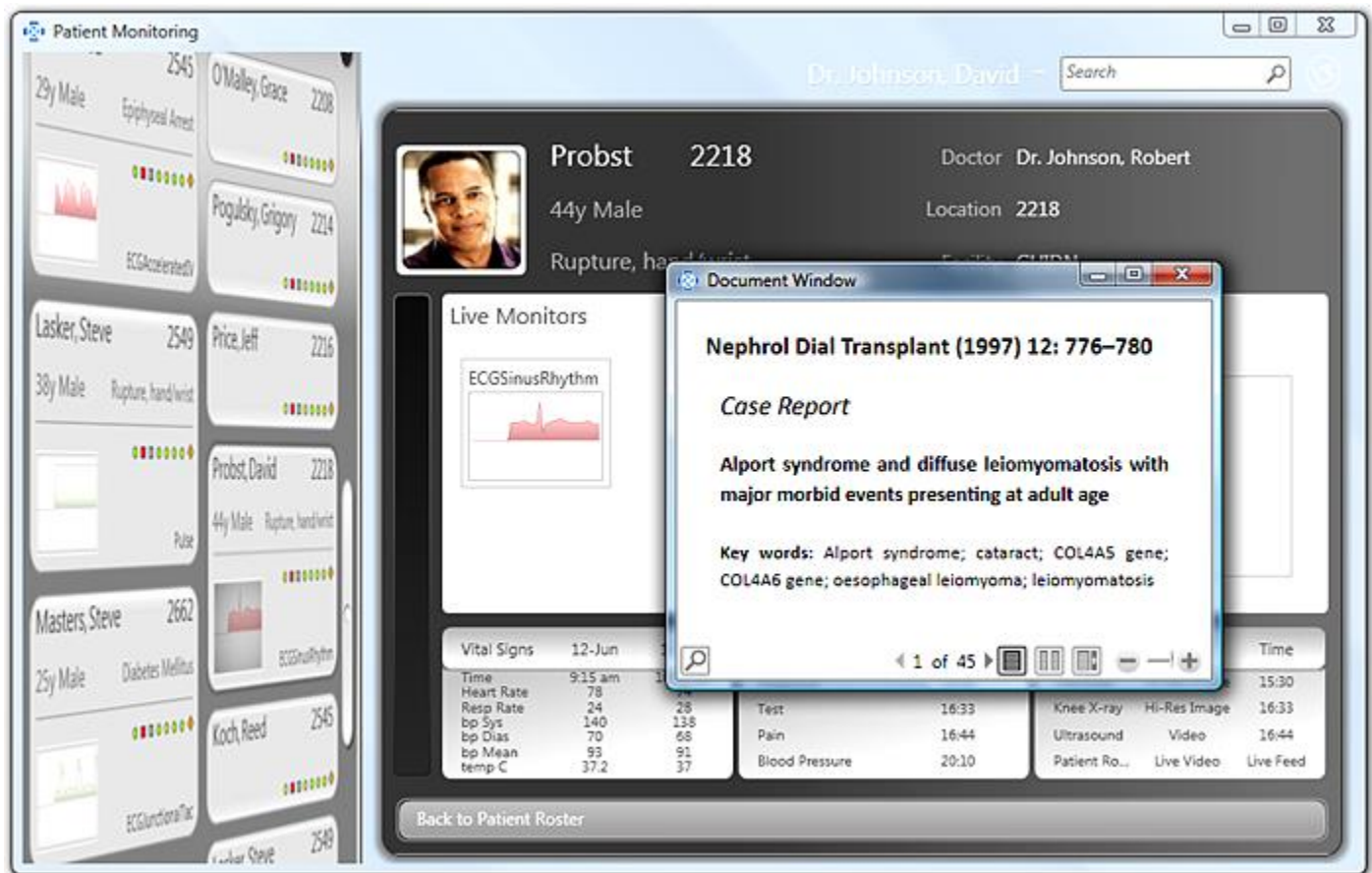# Assignment 13

Advanced concepts of .NET (WPF, WCF, AJAX)

WPF:-

Windows Presentation Foundation (WPF) is a next-generation presentation system for building Windows client applications with visually stunning user experiences. With WPF, you can create a wide range of both standalone and browser-hosted applications. An example is the Contoso Healthcare Sample Application that is shown in the following figure.

The core of WPF is a resolution-independent and vector-based rendering engine that is built to take advantage of modern graphics hardware. WPF extends the core with a comprehensive set of application-development features that include Extensible Application Markup Language (XAML), controls, data binding, layout, 2-D and 3-D graphics, animation, styles, templates, documents, media, text, and typography. WPF is included in the Microsoft .NET Framework, so you can build applications that incorporate other elements of the .NET Framework class library.

This overview is intended for newcomers and covers the key capabilities and concepts of WPF. Experienced WPF developers seeking a review of WPF may also find this overview useful.

WCF:-

 Introduction

I want to make a very simple Server/Client application. Microsoft offers a great tool called Windows Communication Foundation (WCF) for communication between Server and Clients. I am trying to make a short introduction of WCF, but if you interested to know more, check out this link on MSDN for all details.

WCF has two parts:

1. Services

2. Clients

1) Services

Service has one or more endpoints. Endpoint means where message can receive or deliver. Service consists of a set of operations. Every service needs to host. There are four ways we can host and activate services:

1. Windows Activation Service (WAS)

2. As executables (*.EXE*), also called *self-hosted* service.

3. Windows service

4. COM+ components can also be hosted as WCF services

I am going to give a self-hosted service example here. Self-Hosted Service has three parts to become live.

1. Define a service contract

2. Implement a service contract

3. Host and run a service contract

2) Clients

WCF Clients is an application which can communicate with WCF Service operations as method. Communicate with self-hosted service from WCF Clients has three steps:

1. Create a WCF Client

2. Configure a WCF Client

3. Use a WCF Client

AJAX Controls :-

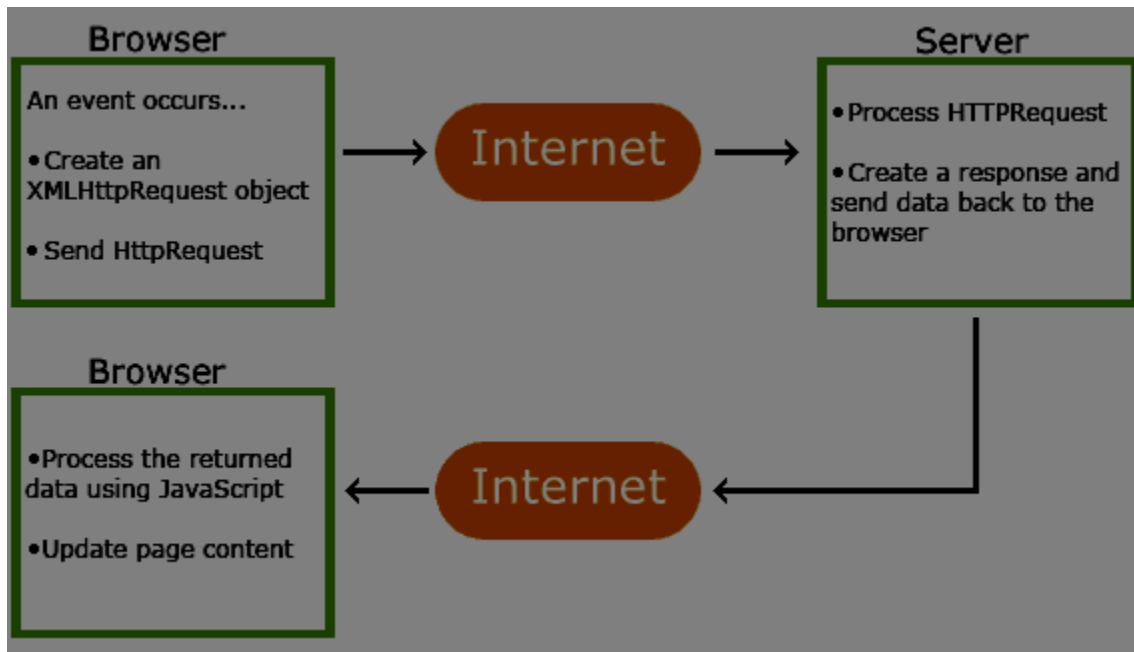AJAX = Asynchronous JavaScript and XML.

AJAX is a technique for creating fast and dynamic web pages.

AJAX allows web pages to be updated asynchronously by exchanging small amounts of data with the server behind the scenes. This means that it is possible to update parts of a web page, without reloading the whole page.

Classic web pages, (which do not use AJAX) must reload the entire page if the content should change.

Examples of applications using AJAX: Google Maps, Gmail, Youtube, and Facebook tabs.

How AJAX Works

AJAX is Based on Internet Standards

AJAX is based on internet standards, and uses a combination of:

- XMLHttpRequest object (to exchange data asynchronously with a server)
- JavaScript/DOM (to display/interact with the information)
- CSS (to style the data)
- XML (often used as the format for transferring data)
- AJAX applications are browser- and platform-independent!

Ajax control toolkit :

The ASP.NET AJAX Control Toolkit is an open-source project built on top of the Microsoft ASP.NET AJAX framework. It is a joint effort between Microsoft and the ASP.NET AJAX community that provides a powerful infrastructure to write reusable, customizable and extensible ASP.NET AJAX extenders and controls, as well as a rich array of controls that can be used out of the box to create an interactive Web experience.

The AJAX Control Toolkit contains more than 30 controls that enable you to easily create rich, interactive web pages.

Ajax control toolkit example :

```
<%@ Page Language="C#" AutoEventWireup="true" CodeFile="Default3.aspx.cs"
Inherits="Default3" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title></title>
</head>
<body>
    <form id="form1" runat="server">
    <div>

        <asp:ScriptManager ID="ScriptManager1" runat="server">
        </asp:ScriptManager>
        <br />
        <asp:UpdatePanel ID="UpdatePanel1" runat="server">
            <ContentTemplate>
                <asp:AdRotator ID="AdRotator1" runat="server"
                    AdvertisementFile="~/XMLFile.xml" />
            </ContentTemplate>
            <Triggers>
                <asp:AsyncPostBackTrigger ControlID="Timer1" EventName="Tick" />
            </Triggers>
        </asp:UpdatePanel>

    </div>
    <asp:Timer ID="Timer1" runat="server" Interval="1000">
    </asp:Timer>
    </form>
</body>
</html>
```

Output :-