**Real-time FX Rates System**

**Preliminary Requirements**:

* The below program developed in VS 2015 but you need at least VS.NET 2012 or above
* Internet connection to access the online site (https://www.google.com/finance)

**Idea:**

* Getting real-time currency rates from many currency pairs from https://www.google.com/finance asynchronously for set of many currency pairs with base currency USD.
* I have dedicated services which will pull online rates after every 5 seconds. Using all kind of parallel commuting to fetch all updates in one go.
* Once we have rates for all currency pairs (with base currency), applying calculation logic to get rates for all combinations of currency pairs.
* An event-listener mechanism to listen updates and then display the rates frequently in speed to the WPF DataGrid.
* Full use of MVVM design pattern, a different and dedicated view model for each cell in the grid to update each cell without any UI blocking

**Challenges:**

* It is difficult to find any free service which offers real time updates within seconds. Initially I used many online sites to get real time data but they have protection for not to do screen scrapping and read data programmatically.
* Then I used https://www.google.com/finance that gets rates with some delay (around 1 minute).

**Assumptions:**

* Since rates from <https://www.google.com/finance> have some delay, in order to simulate quick updates on WPF GUI, I am updating rates manfully with some random minimum decimal value (0.01) after every 3 attempts (15 seconds) if rates are not changing within 15 seconds. This hard coding is not required but just to reflect real-time prices I am doing that.

**Steps to Build/Run:**

1. Use VS.NET 2010 or above to open the solution.
2. There are two projects. One is client and another is service (Unzip the directory)
3. You first need to build both project before use, The attachment contains no binaries
4. No third party or open source used

Output screen:

