**University of Maryland**

**University College**

CMSC 495

Current Trends and Projects

In Computer Science

Project Analysis for Currency Converter

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Date: September 8, 2013

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Project Analysis for Currency Converter

Introduction

Software analysis is the most important phase of the software development lifecycle. In this phase the team spends great amount of time as needed to study, analyze the problem that needs to be solved, and gather the requirements in order to understand the nature of the whole software project. Our software development team will ensure that we asked and answered all the right questions in order to understand all functional specifications of the software project. However, to analyze the software project, the team will produce diagrams and user friendly models in which a non technical person will easily understand it. The software application requirements analysis consists of visualization technology diagrams such as conceptual contextual diagram, subsystem diagram, data model, and analysis review that will help the development team and the end-users (customers) to get a clear idea about the requirements. Thus this approach will reduce and prevent the hidden requests.

Requirement Analysis

The software “**Currency Converter Project**” function is to provide its users (customers) whether they are organizations or individuals a Web-based foreign exchange rates, currency conversion calculator for any amount of money, and historical rates for up to 90 days in a form of graphic chart. The application will provide the following tools for its end-users.

1. A Web address to access the service.
2. A Web page with a user graphical interface to allow the user to convert currencies.
3. The application will permit its end-users to perform the following:
4. Select two currency types to convert to or from each one.
5. Always the default currency to convert to will be the United States Dollar.
6. The user will be able to enter the amount of currency.
7. The application will provide a drop down list for currencies to help the user to select a currency.
8. The application will show its users the currency conversion results on the monitor upon their choice.

Data Analysis

**Input data and input data Sources**

* + - * 1. The end-user (customer) will provide the currencies and the amount of money to be converted as input data.
  1. The Currency Converter application interface will retrieve the daily current exchange rates from the Web service provided by European Central Bank Web address [www.ecb.europa.eu/stats/eurofxref/eurofxref-daily.xml](http://www.ecb.europa.eu/stats/eurofxref/eurofxref-daily.xml) in Extensible Markup Language (XML) format (Quin, 2012).
  2. The Currency Converter application interface will retrieve the historical 90 days currency exchange rates from the Web service provided by European Central Bank Web address [www.ecb.europa.eu/stats/eurofxref/eurofxref-hist-90d.xml](http://www.ecb.europa.eu/stats/eurofxref/eurofxref-hist-90d.xml) in Extensible Markup Language (XML) format.
  3. If the Currency Converter application could not retrieve current currency exchange rates or the 90 days currency exchange rates from the European Central Bank database for any reason the system will send an error message to the user informing him that the process is not successful and ask him to try again.

**The output data**

* + - * 1. The output data will be produced by the Currency Converter application according to the user selections and amount of money need to be converted.
        2. Also the 90 days historical output data and information will be produced in a form of graph for the selected currencies.
        3. All output data and information will be displayed on the customer Web browser window and will be printed if the user chose to do so.

**The required process to convert input data to output**

The application will perform the following processes on the input data and show its users the results on the monitor upon their choice:

1. The calculated result of the selected currency amount converted to the foreign currency type and multiplied by amount of money need to be converted.
2. The application will also provide a historical chart for the past 90 days rate changes for a given foreign currency rate.

Context Diagram

The context diagrams for our Currency Converter System, where it shows the outside system, the input and output data.

**Context diagram (figure 1)**

**User**

**Online Currency Converter**

Input Internet Access Conversion Process & Output

Subsystem Diagram

The context diagrams for our Currency Converter System, where it shows the outside system, the input and output data.

Subsystem diagram (figure 2)

**User**

**Online Currency Converter**

European Central Bank Database

Conversion done

**Display output**

Analysis Review

The detail operation on the Currency conversion process needs to be analyzed and visualized in the subsystem diagram. The initial contextual diagram does not illustrate the back end operations. For example, Data requested from the European central bank which will be sent to the Online Currency Converter for the conversion process then display the output, may not be successfully retrieved from the European Central Bank database, in this case the system should send the user an error massage. As a result of analysis review, the team recommended to add the following recommendations to the project analysis subsystem diagram:

1. A function to process the 90 days historical Currency exchange rate processor.
2. A function for the currency exchange rate conversion.
3. A function for currency exchange amount calculation.
4. Detailed illustrations for the input, process on the input data, and produced output from the system.

Revised Subsystem diagram (figure 3)

**User**

**Display error message about unsuccessful Currency Conversion process to the user.**

**Send an error message about unsuccessful conversion process to the user.**

**Display Online Currency Converter 90 days historical currency exchange rate processor to the user.**

**Send currency rates and converted amount to the user.**

**Display Online Currency Converter result to the user.**

**Send 90 days historical currency rates to the user.**

**Send user inputs amount and currency exchange rates to the currency exchange amount calculator.**

**User inputs amount, Origination currency, Conversion currency.**

**Displays amount converted, conversion rate and Graph of rates for the past 90 days.**

**Send Data to the 90 days historical rates processor.**

**Send the input Data to the Rate Converter**

**Send the input Data to the Currency Converter System**

**Online Currency Converter System**

**Request Data from European Central Bank sent to the System**

European Central Bank Database

# References

Quin, L. (2012, 6 16). *Extensible Markup Languag.* Retrieved from http://www.w3.org: http://www.w3.org/XML/