

Project Analysis

CMSC 495 6380 Current Trends and Projects in Computer Science (2218)

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Group 5

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Revision history

Revision number	Date	Description	Name
1	05 Sep 2021	Added context diagram with all data between system and user listed. Added Subsystem diagram with all data listed. Added descriptions for subsystem.	Mike Schaffner
2	09/07/2021	Reviewed the subsystem diagram with all data listed and the descriptions for all subsystems sections	Danny Padro
3	09/07/2021	Added possible enhancements and risks.	Shawn Kratochvil
4	09/26/2021	Added API reference website to Subsection description Section item C	Mike Schaffner

I) Analysis

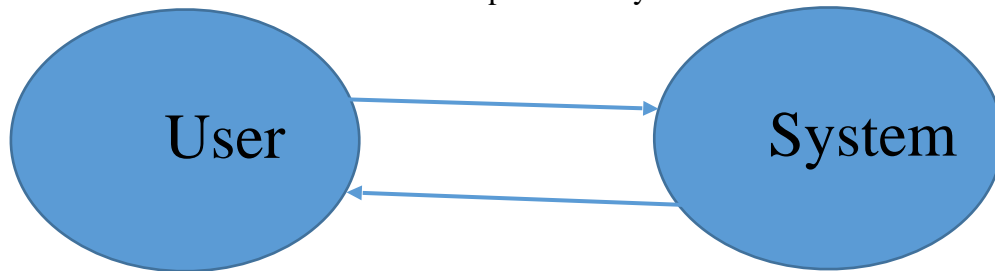
- Outside systems with which this system interfaces - The user

- Input data and the source(s) with which this system interfaces - The amount, the input currency and the output currency, all coming from the user
- All output data and the destinations of these data - The converted amount to the output currency message which is displayed to the user
- The data processing function of this system - This system receives an input (amount, input currency, output currency) from the user, takes the currency exchange rate from the internet and multiplies that rate (inputted by the user), and displays the converted rate on the screen.

Context diagram

Amount; Input Currency;

Output currency

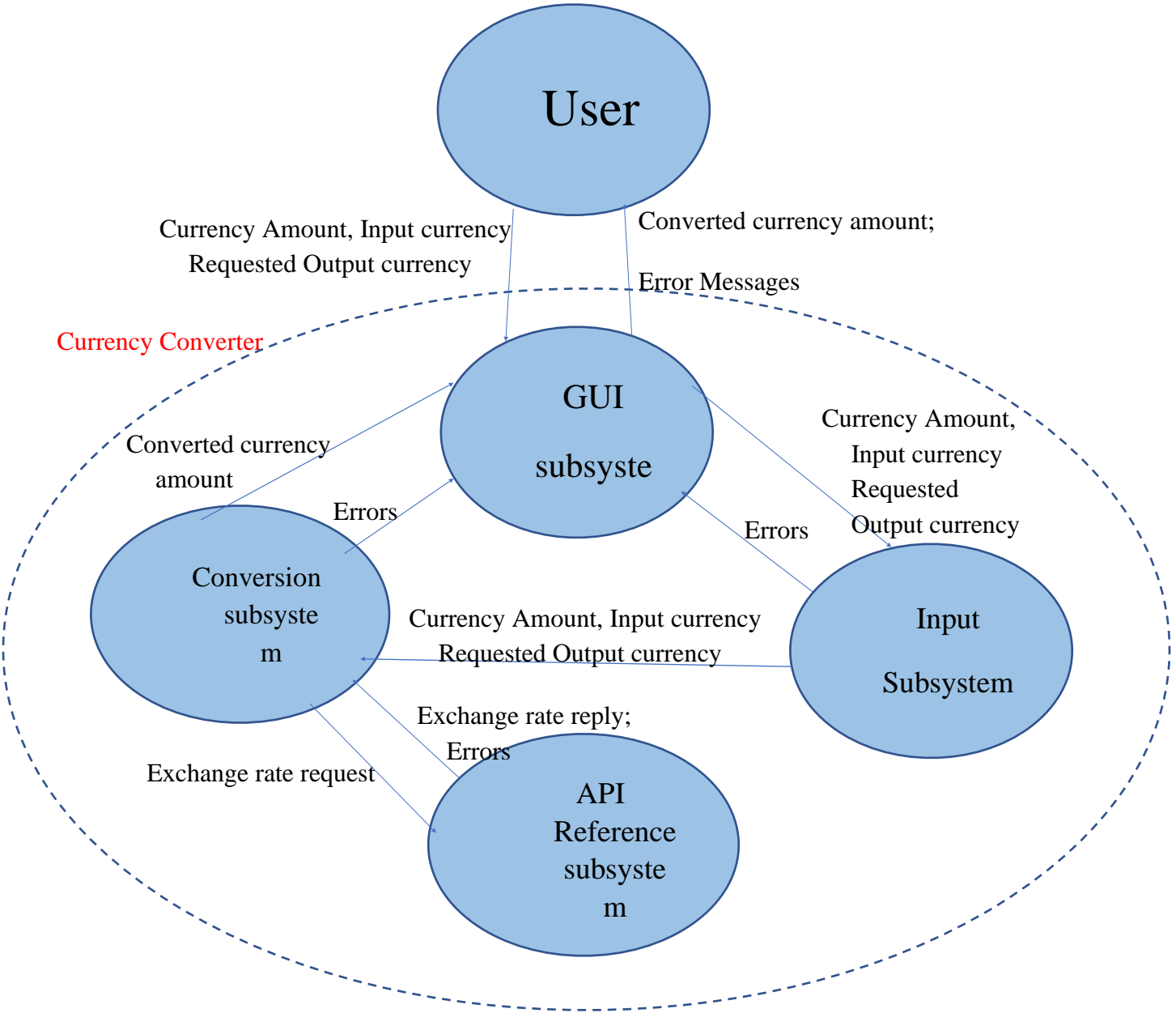


Converted amount to

output currency message;

Based on the data processing step, we divided the system into the following subsystems:
Input, Conversion, GUI, and API Reference.

Subsystem Analysis Diagram



The following is a description of the subsystems:

- a) Input Subsystem: this subsystem received input from the user: amount to be converted, input currency, requested output currency. Generates error messages if input data is not valid.
- b) Conversion subsystem: this subsystem receives user currency amount, input currency and requested output currency. The conversion subsystem will also request from the API reference the most updated value for the requested output currency. The received output currency value will be used in the conversion process. The conversion subsystem will perform mathematical calculations using the input currency amount and the output currency value for the requested output currency amount. The conversion subsystem then sends the converted value to the GUI subsystem for display. Errors messages are generated and sent to the GUI subsystems.
- c) API Reference Subsystem: Receives a request form conversion subsystem for updated currency values. Returns most recent currency value from an online database. Error messages are returned to the conversion subsystem. API website being used for this project is **<https://www.exchangerate-api.com/docs/supported-currencies>**
- d) GUI Subsystem: Displays currency converter application name, Input currency label, Input currency amount box, input currency drop down box, output currency drop down selection box, Output currency label, output currency display area, error message display. Button for conservation of currency.

Requirement #	Subsystems
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1	Conversion
2	Input, Display
3	Display
4	Display
5	Display
6	API Reference

Possible enhancements:

One possible enhancement is the ability for the software to “save” certain transfer rates from one currency to the other. This way, even if you do not have access to the Internet, you can still use the application to convert currency. This could be implemented by storing the last retrieved currency rate from the internet. It should be possible to check currency rates from previous dates or from previous conversions (that is, the app has a “history” or “activity summary” of conversions you made). If allowed enough time, the app could include a graph display of the currency transfer rate over a week, month, or year long period. This would give the user more information to reference while they make conversions.

Possible risks and risk mitigation:

One possible risk which is unavoidable is the difference between the different reports showing what the transfer rate of a currency actually is. This means that the currency conversion rate for each conversion may vary (usually slightly) depending on what source you use from the internet. We could use <https://www.bankrate.com/calculators/investing/currencycalc.aspx> as our source for the conversion rates, as it is reliable and accurate. If we do not include the above enhancement (of “saving” rates) for the project to work offline, then obviously the application will cease to function without access to the internet.

