



Mojular – Modular Solutions

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Abstract— *Web application for creation of modular solutions, allowing users to have the right solutions at hand for their current interest and or problems while having it being dynamic, capable of change defined as required and necessarily. This would greatly benefit not just the users, but as well as the developers/builders as even if the module can be reused, it often times is a whole lot easier to manage a single fault rather than a many, while having it room for improvement.*

Keywords— *Modules, Objects Solutions, Modular, Software, Web*

I. INTRODUCTION

Over the past years the world has witnessed various changes, either in nature, or any other man made developments. Over these changes, the humans are the one to contribute a lot. Many of the human developments are either a failure or a success, and this varies in different forms because of the different scenarios and purpose. The developments of human in certain degrees affects others as they are interrelated no matter what, after all it is one world every human is revolving around. Because of such interaction it has become necessary that every human must be able to produce something that is worth for others. This something of worth for others is really of worth to them, but even if there are outputs that are almost as perfect for those that uses and needs it, there are still those outputs that does not make it right.

The world has ever changing needs, and even if those needs are satisfied, time comes that one seeks for improvement, refinement, and redefinition. Then there comes new problems that need to be solved and given solution. To compensate, solutions are made and remade, or purposed and repurposed. But whatever method is used, there are those points that are common for each solution, and sadly they are remade from scratch, again and again, losing efficiency that could have been allocated for a much refined solution. For the development of much better and redefined solutions, the way solutions are made needs to be redefined itself.

II. BACKGROUND OF THE STUDY

At many times there comes this certain point wherein everything is met and done but it seems that still in the end comes something that is missing. This is something that is fairly related to the process of creating or developing an output, a product, and in the process, there one follows the steps in order to create the desired result. In this process comes the resources that is necessary and then after which the expected output. What baffles those that creates, develops, builds, is that there seems to be an infinite ways for something to go wrong, but limited to make it go right. That limitations to make something go right, is the right options to make something go right. It is then obvious that options are crucial, because it is the very foundation of what makes an output, or product go right. In most times, these options are the one lacking thing not because that it does not perform as expected, but because these options are deemed only for their specific purpose in that specific development, or in other words, because the option is static. This turns the option weak, and incomplete, which in turn produces unwanted, incomplete, or worst failed results may it be not on its current, but on its latter time.

III. CONCEPTUAL FRAMEWORK

This area of the research aims to give an overview on what the actual software would do and how it would work in a visual way. This would make it possible to further solidify the purpose and how the software would work in technical level.

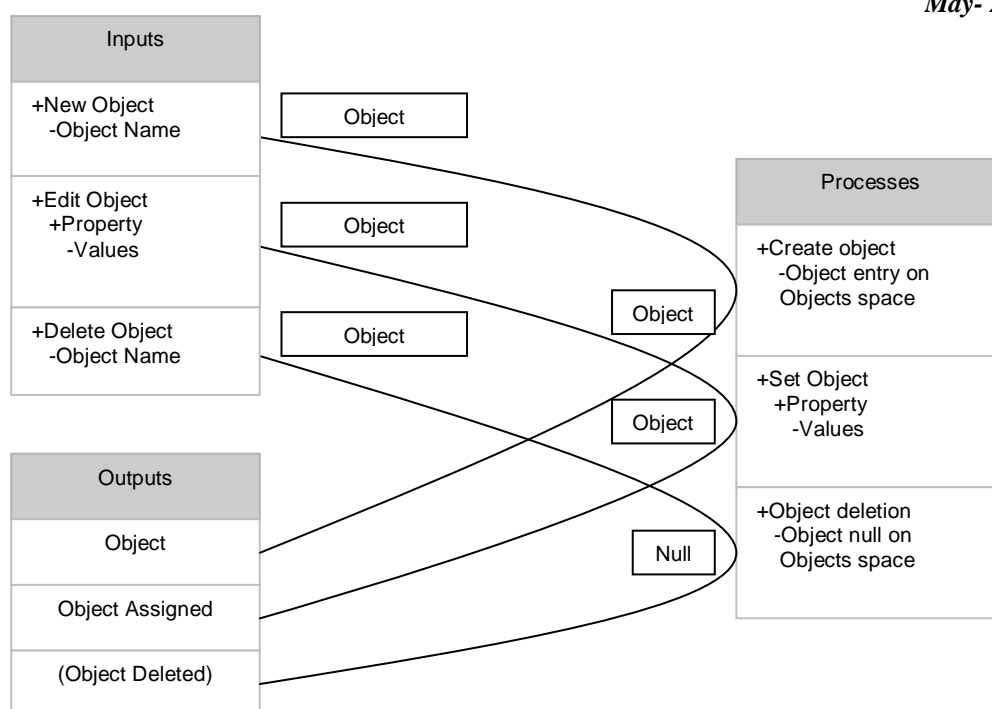


Fig. 1 System Transaction and Class Diagram

IV. OBJECTIVES OF THE STUDY

The main objective of this study is to provide those that need options capable of dynamically changing in accordance to the user's use discretion. With this it is possible to provide an ever changing solution capable of changing as per requirements in a much efficient development, much informative way. The proposed software will be able to provide a bridge for the developers and their client in a more understandable way for both end parties. As such it is possible because of the proposed software to evolve solutions to be better each time it is furthered in development, and because of so, better solutions will become available for everyone of those that needs it while growing more options as well in the process, beneficial for both those that develops and consumes.

A. General Objective

The general objective of this research is to provide a way for the development, building, creation, crafting of any projects, products that the scope of the proposed software is able to cover to be much friendlier in experience, capable of evolving, and better in outputs. The proposed software will make it possible for the creation of better applications, products, outputs, than the current recurrent solutions containing the same common problem hindering its full potential. With this it is possible for the further development of any certain jurisdiction the proposed software will belong into.

B. Specific Objectives

The specific objectives that the proponents would like to accomplish are:

1. Develop a system that is capable of providing solutions in any form covered by its confines that is capable to evolve;
2. Develop a system that will not only be useful but be concise and friendly for the use of the users that will benefit with the use of the proposed system;
3. Develop a general use software that every probable user would be able to use per their discretion, for their own purpose, for their own benefit;

V. SCOPE AND LIMITATION

The software scope and limitation will be delimited only to such extent where the purpose of the software is concerned, this includes the processes required to perform the functions of the software and the related information regarding the matter in order to accomplish the purpose. In general the search space will be delimited to and only be contained in the confines of the matter relating to the subject of this research paper which to provide a solution for solutions, for much better solutions.

To provide the services the software would offer, the software would cover the data – visual construction to display object structures, data logging for object statistics and data comparison for object data analysis. Computations necessary will also be included for use either for or for both statistical and analytical use. The software will cover graphical representation in various ways in order to exhibit proposed benefits of software usage.

The software will be for solution specification, management, statistics and analysis; it will employ measures to represent data, record statistics, analyze data and generate information, manipulate, manage, monitor, connect and relate objects in its confines.

The proposed software will better bridge the end users and developers, while giving each control on the solutions, hence the scope may come up to point where the platform is workable, while solutions developed by other developers being the limitation.

The proposed software is intended and is to be developed for the web. The development of the proposed software will require various tools and technologies including software development tools and web technologies. The proposed software will be developed in a timeframe following the scheduled, this may include 3 to 4 months of development, but the proposed software will primarily be developed in those times with the major functionalities present and thus henceforth no further extensions of features may be added but is rather considered.

The proposed software will only function as per the available functions and modules available from the keeps of the proposed software, which then can be further added with functions custom made by third party developers, henceforth the solutions prowess will depend upon the availability and superiority of the options that is available through the proposed software.

VI. RELATED STUDIES

These are the studies relating to the proposed software. The studies will better expand the research space of the proponents and be able to understand the problem and create better solution.

In a study held by Microsoft in its case studies at its customers website “Media Company Saves Costs, Improves Service by Switching to Open and Flexible Microsoft Azure”, the company Orchestronix Corporation was able to reap benefits for using the said computer software. The software’s purpose is to provide a way for the betterment of the development of the computer solutions that are derived and made from the said software. Implementing different kinds of measures in order to attain the main goal of the product, the solutions have become much effective in its purpose. The software provides various means for the effectiveness of the software or solution then made through the use of the software.^[1]

As similar to the Microsoft’s Azure, the proposed software will be able to provide means for the betterment of the development of the solutions which are important as it is for solving specific problems, as such a solution for solutions, this will make it possible that solutions developed through the proposed software is made not only effective on its main goal, but effective on its entirety as a whole. It will then be more possible that more problems does not arise from the use of the solution and create more problems than solve one, this will be especially beneficial to those that needs time and resource on their hand, for both that uses and develops.

From another case study held by Microsoft at its customers website in the Philippines entitled “Miners' Private Cloud Exchange Increases Professionalism, Email Security at Remote Site”, with the use of Microsoft Exchange Server, and with help from ePLDT, a server hosting and services company being their technology partner, it has become possible that their problem of having their own corporate email as well as having these connections and transfers, or the servers in general be secured for privatizing of company documents, is solved. Having not to do anything too much is something that the Microsoft Server Exchange was able to provide, by seamlessly providing means to perform task needed for the crafting of the solution which the Philex Mining Corporation needed.^[2]

With the availability of means provided by Microsoft Server Exchange it has become possible to create solutions in a much effective, fast and efficient manner without having to jumps through hoops developing for the solutions the Philex Mining Corporation has been needing. Being straightforward in the development of the solution has made it beneficial for the Philex Mining Corporation as well as the developer, in this case the ePLDT. The proposed software is running in frame this transaction between developer, solutions and users are undergoing, by creating means of modularity in a more effective way, it will be made so possible that the team in development for solution directly craft the solution the end consumer wants and needs without compromising the quality of the final product as per technicalities.

In a published case study of Microsoft at its customers website on Kongsberg Maritime entitled “Maritime Firms Improve Insight and Efficiency with Microsoft Solution”, discusses about how the firm’s solutions can be further improved to provide better solutions and not limit the space of the software for effectiveness and usefulness, the firm plans to do this by sharing the information they already have and having a return of the shares back, this will make it possible to expand the search space and bring the solutions they make into a much closer accuracy. Because the firm can analyze more information with regards to their subject, this will make it possible to make bases for the development of the solution parts creating a better solution whole afterwards.^[6]

VII. RELATED LITERATURE

These are the related literature pertaining to the same class the proposed software in this research. These literatures would be able to give an insight as to what the inputs and outputs are in terms of use and the effects of solutions today brought by those whom develop.

Computer software systems or software in general have evolve in various ways, ranging from the most simple, to the most complicated, but up till now firms or users encounter the same problem as before, upgrading and the costs, may it be expenditure or resources, this is because of growth. Every organization or jurisdiction a software belongs into develops on its own, because of that problems occur along with these developments, as an after effect better or sometimes better solution or solutions is needed. It has been really painful to deal with solution upgrades both with the developers and the users alike, because of this, it is often that a new solution is brought and made instead of upgrades, thus recreation and mutation occurs. One example is from a related software named Paycheck, from its website Paycheck, is a software solution developed in the Philippines for business needs. Paycheck is an integrated Payroll System and Human Resource Information System Software for the Philippines, as one can see, Paycheck is one of the products of

software evolution. By combining key essentials for a certain class of problem, Paycheck is developed as a solution. This kind of softwares goes on and on, but even after this so called evolution, the software does not have the much expanded means of evolving. It is true that software changes as per requisites, but most of these software does not undergo upgrades from itself, but instead replaced by its own kind, this is especially undesirable for the general outcome as the developers cannot focus entirely on enhancing solutions but instead focus on creating a replacement or a new one. The proposed software is to be developed for this reason.^[8]

The proposed software will provide measures on how solutions would have the capability to evolve as to requirements. It will become possible that software can be collaboratively developed by different developers from different timelines, because of this it will become possible for developers to focus unto developing solutions unconstrained by developing a whole new software every time, also it is possible that users or end consumers themselves knows what they would want and control the provided solutions as the proposed software's library grows.

A software's solution scope is important, and so giving the solution the capability to evolve is something to really be looked upon, but the solutions stability is something to be also put in mind. In a published article of Philippines Today on its website "Leyte programmers to handle enhancement, sustainability of iTAX system developed by GIZ", in this article discusses about the maintainability of the software developed by another party, namely The German Development Cooperation-Deutsche Gesellschaft für Internationale Zusammenarbeit or GIZ and to be then maintained by another party, the leyte programmers, two in which unrelated in governance, the latter having to maintain needs to know what is currently already in the software in order to maintain and make it so that the software function as to its purpose, this is not an impossible task but depending on the situation, there will become great transfer of knowledge for such task, and this can become a problem especially on a large scale software, for this reason vast reasons are in put when choosing those that will maintain the specific software as stated in the article.^[9]

As solutions made from the proposed software are modularly oriented in its making, it will become much easier to maintain, and upgrade these solutions as necessary. The developers will be able to maintain and monitor each part of a solution module by module, thus then, it is much possible to target emerging problems from the solution itself and solve it even before it starts creating more problems, this will become especially beneficial for both that develops and consumes as it will minimize possible greater resource consumption.

In an article posted by Entertainment at its website entitled "How Lego Bricks Work", talks about how each and every brick is processed and how the concepts and ideas comes together to enable its users to build something as per their own desire given that the Lego bricks can accommodate. The article explains that each and every one of the products that are created using Lego bricks are all made from the very basic component, a Lego brick, in which can be emphasized that everything can be made then out of the bricks which are given. Then comes the mini figurines or *minifigs* as Lego wants to call it, which then fills in the rest of the detail in order to complete the whole set and arrive to a concludable product.^[10]

The proposed software is very similar to the concept that Lego has put unto its own products. The proposed software will consists of functions acting as bricks in a Lego sense in order to bring about a certain purpose. These functions are all built by those that develop being the manufacturer in Lego's case. Then comes the system of functions or modules that acts as the mini figurines or *minifigs* in Lego sense, which one can use to expand the function of a certain solution. All of these to bring a solution that is capable of dynamically evolving per the desire of its developer and or user. With this it will become possible to bring about the creative side of those that develops and also those that uses without compromising the ideas and concepts with technicalities.

There are lots of different solutions out there either in use, development or in the market, and one of those are information systems. From a Chron article on its website, "Tangible Benefits of Information Systems", discusses on the benefits of using information systems. The article talks about; how custom information and custom format is possible, being appropriate for each users for their specific field of work in a certain organization; then how real-time information is beneficial especially for those that needs critical information as soon as possible; and lastly how information systems are capable to adapt to every different organization needs. All of these made accessible with the use of solutions made and developed for the betterment of the users. Effectiveness and efficiency are main things possible because of such advancement in technology.^[12]

Advancement in technology is something that is in development for quite awhile now, and many knows and is aware of it. But as technology evolves and comes to different purpose and forms, comes problems as well, as fast as how technology goes, because of this it is needed that solutions follow, evolve and adapt as how the problems does, the proposed software will be developed for such a problem. One of the possible solutions made from the proposed software is an Information System, but unlike the Information System itself, the proposed software focuses on how the Information System and other solutions made from it will become much capable of adapting and evolving by giving information on how the solution is made possible and what more can be done to make it something else, with this it will become possible to create solutions that does not need to be made entirely from scratch but by building solutions bit by bit dependent on what the developer of the solution wants and needs and not on what can only be done.

VIII. RESEARCH DESIGN

The proponents are using the Descriptive method in the study. Descriptive is a study designed to depict the participants in an accurate way. More simply put, descriptive research is all about describing people who take part in the study. The method that the proponents are using to gather data is through survey form. The survey is conducted by giving out survey questionnaire forms to appropriate respondents.

A. Use Case Diagram

The most known of the behavioral UML diagrams, the Use Case Diagram offers a visual way of showing how an actor can interact with a system along with its functions and how each and every functions interacts with one another. In this diagramming method an actor is the one interacting with the system

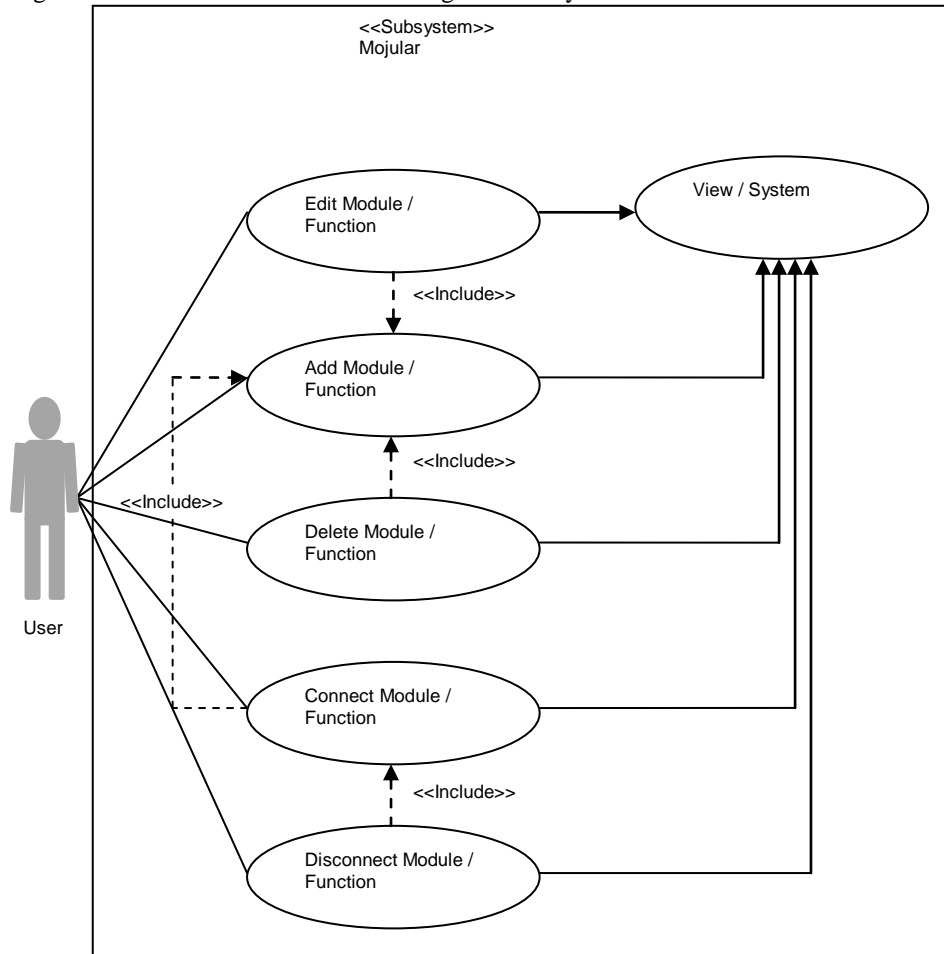


Fig. 2 Mojular Functions Diagram

In Fig. 2 shows the functions of the proposed software, each function performs different actions from the current system active or in view, the functions of the different systems are ambiguous, however they are not equal and are only similar.

IX. USER INTERFACE DESIGN

The software graphical user interface is the design of software application with the focus of users experience and interaction.

The Software System Interface is the application of the specification of the proposed software in the Graphical User Interface or GUI side. This represents the main details the proposed software has to be having to perform as its specification

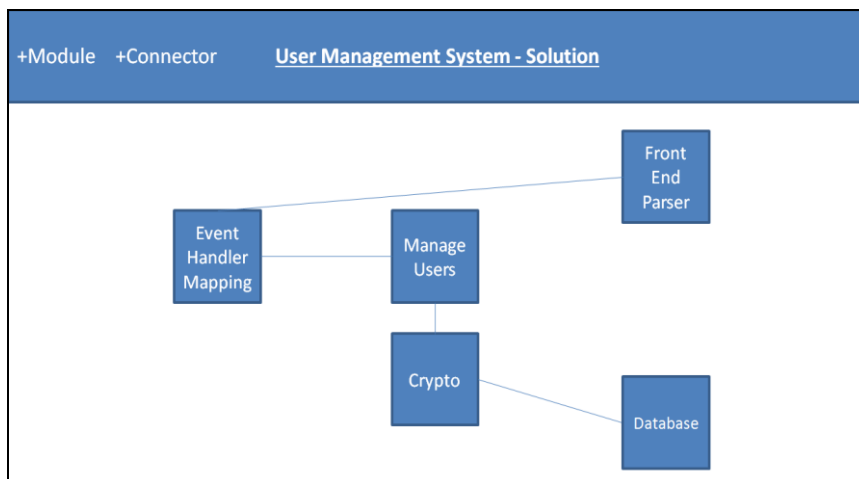


Fig. 3 Overview – Solution View

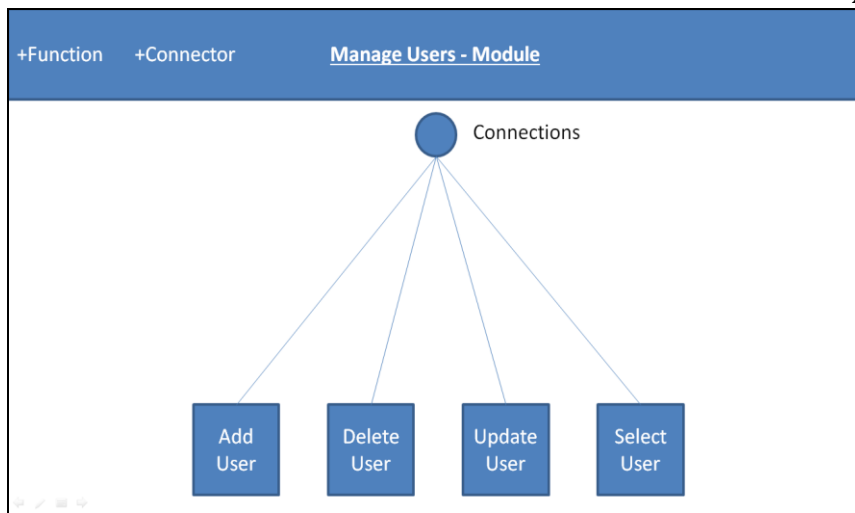


Fig. 4 Module View

The diagram shows a blue header bar with the text 'Add User - Function'. Below the header is a white area containing code for a function. The code is as follows:

```
Function addUser(user, dbConn) {
  ...
}
```

Fig. 5 Function View

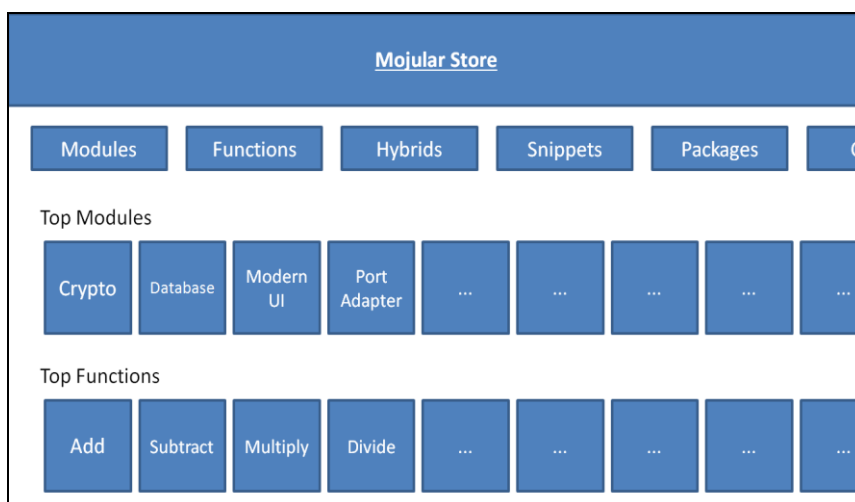


Fig. 6 Mojular Store

In the mockup GUI of the proposed software shown above are the different and main interfaces of the proposed software. These interfaces are the design in which the base of the proposed software is in.

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