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ФКТиУ, кафедра Вычислительной техники

Лабораторная работа №3

по дисциплине

«ПРОЕКТИРОВАНИЕ ВЫЧИСЛИТЕЛЬНЫХ СИСТЕМ»

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Purpose

Acquisition of skills in the development of architectural design tools (architecture documenting language or architectural style).

The challenge of architectural design

A function diagram is used to display the function side of the system and the actors that will perform those action.

This diagram can be use generalize function of systems in a logical way, therefore we can easily understand functional part of the system. It also help modify, expand the function of the system easily.

The goal of this lab is to develop a design tool that will allow you to describe funcctional part of the system in an easy-to-understand and easy-to-analyze form.

Description of the modified design tool

We call this is a function diagram. It is hierarchical and shows relationship between the layer of functions of a system.

The diagram has the structure of a tree.

- The root of the tree represents the system being describe.
- Each node itself is a idea/function, which will be break down to smaller idea/function as child node.
- Each node can have one or many children nodes.
- Each node can only have one parent node.
- Node can contain actor label: means this actor can do functions of the current node and all of its chaildren nodes.
- An arrow will show the relationship between node and its children nodes.

Advantage:

- This diagram is effective for describe and analyze large project because it's brief.
- It is easy to read and visualize
- It also help us to define and organize requirements because it provide a over-view of the system.
- The way it's implemented will also enhance the logic of the system prevent redundancy.
- Easy to expand and enhance system functionality
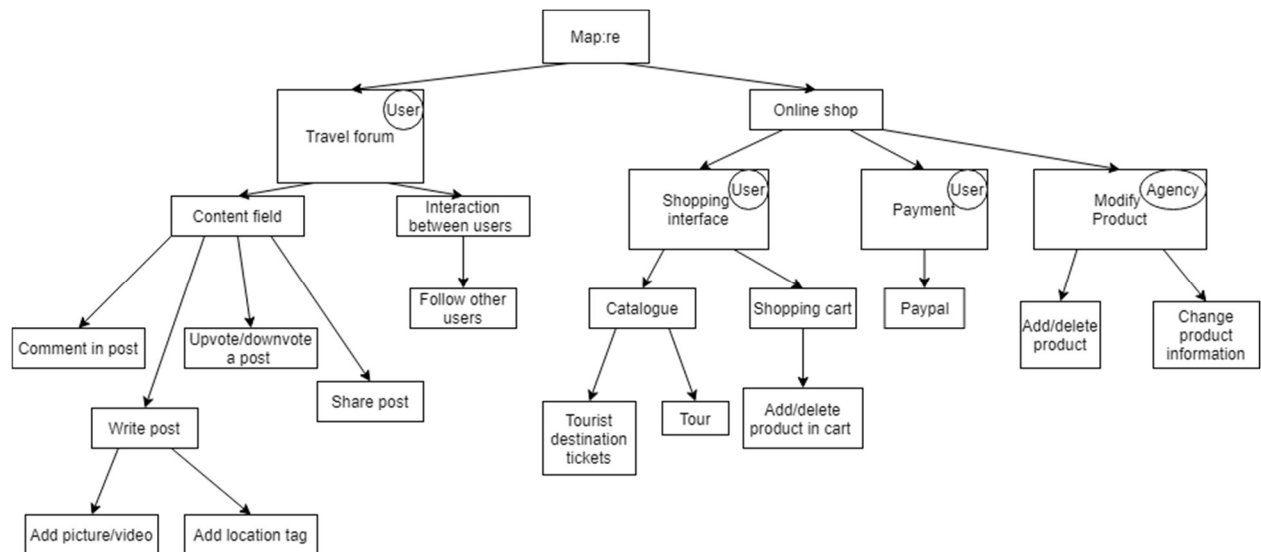- Help to design user interface more easily

An example of using the modified architectural design tool

This is our project: an application called Map:re. It has 2 main part:

- Travel forum is the place where users will share travel experiences, favorite things in the trip and travel itinerary.
- Online shop is where users can buy tours and entrance tickets of tourist destination.

A normal user can perform all the function in travel forum, shopping interface, payment and alll their children nodes.

An agency can modify product in catalogue list.

Tool evaluation criteria

Amount of information - a sufficient amount of information to describe the problem being solved (less information - no overload is better);

Implementation complexity - the complexity of the implementation of the diagram;

Visibility - how quickly and easily you can grasp the essence of the system architecture and understand the features of its components.

Extensibility – possibilities when expanding the system

Criteria	Function Diagram	Use case Diagram
Information	9	9
Implementation complexity	9	7
Visibility	9	8
Extensibility	9	7

Conclusions

In the course of this lab, skills were acquired in developing architectural design tools to solve architectural problems.

A Function Diagram was developed to logically describe the functions of the system and the actors that will perform those action in a clear, brief and easy to understand view.

During the comparative analysis, we can see that the function diagram is more concise and easy to understand, meanwhile still provide comprehensive information of the function and actor, in comparison with use case. It also allows us to easily modify or develop systems since it desctibe the function part of the sytem in a logical way. The diagram is easy to implement and understand, even for beginners.