Advanced Software Engineering Lab-Autumn 2022-23

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STRUCTURE CHART 2022

SOFTWARE COMPONENT CATALOGUING SOFTWARE

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1 Introduction

1.1 Structure Chart

Software Architecture can be defined in terms of modules and their interactions can be captured through a Diagram Notation tool called Structure Chart. It is the hierarchical representation of a system. Structure Charts partitions the system into black boxes (functionalities and modules is known to the user but inner details are not known.). Inputs are given to these black boxes and appropriate outputs are generated. Using black boxes reduces the complexity of the system. Modules at higher levels generally do coordination and control; modules at lower levels do I/O and computations. Module at level 'i' calls module at level 'i+1'. Components are read from top-to-bottom and left-to-right.

A structure chart looks very similar to a hierarchy chart. The main difference is that we include interfaces to indicate the movement of data and control information.

We use the following symbols in Structure Charts. An Example of structural Diagram

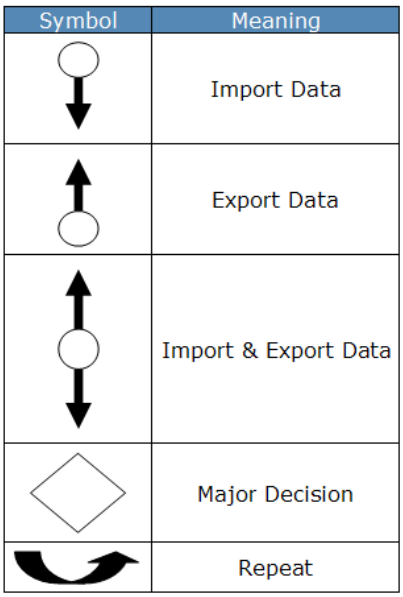

Figure 1: Symbols used in construction of structured chart

Symbols used in construction of structured chart

1.2 Module

It represents the process or task of the system. It is of three types. Control Module A control module branches to more than one sub module. Sub Module Sub Module is a module which is the part (Child) of another module. Library Module Library Module are reusable and invokable from any module.

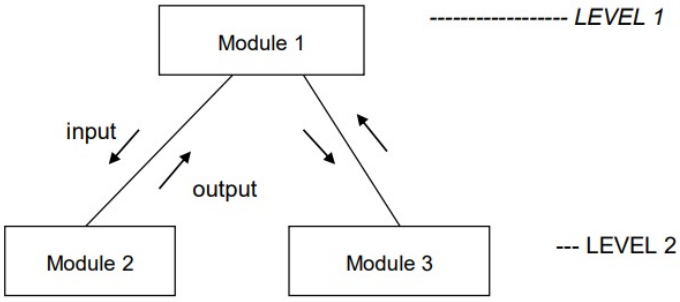

Figure 2: Module 1 sends some data input to module 2; the module 2 processes the data to produce output and return to module 1.

1.3 Conditional Call

It represents that control module can select any of the sub module on the basis of some condition.

1.4 Loop (Repetitive call of module)

It represents the repetitive execution of module by the sub module. A curved arrow represents loop in the module. All the sub modules cover by the loop repeat execution of module.

1.5 Data Flow

It represents the flow of data between the modules. It is represented by directed arrow with empty circle at the end.

1.6 Control Flow

It represents the flow of control between the modules. It is represented by directed arrow with filled circle at the end.

1.7 Physical Storage

Physical Storage is that where all the information are to be stored.

2 Structure Chart of Software component Cataloguing software

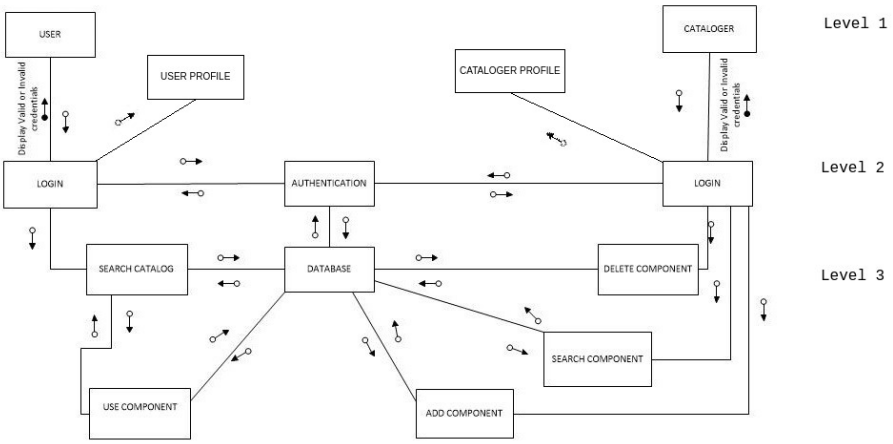

Figure 3: Software component Cataloguing software structure Chart

2.1 Description

In the above chart, we have shown different modules and component in a rectangle shape which is connected to each other with connectors and data flow is shown by a directed arrow with empty circle added to its tail , where as flag flow is shown by a directed arrow with filled circle at the end.

2.1.1 User Login

User/Customers can log in to the system. This use case begins when the user begins to log in. User inputs his username and password, and then submits this data tranmission is shown by directed arrow with empty circle . If the username and password are correct, he will successfully log in otherwise they need to reset their credential and a message will appear and this is shown by a directed arrow with filled circle.

2.1.2 User Profile

A user of the catalogue may update his/her profile after login therefore directed arrow with empty circle is shown there.

2.1.3 Cataloger Login

Cataloger can log in to the system. This use case begins when the Cataloger begins to log in. User inputs his username and password, and then submits this data tranmission is shown by

directed arrow with empty circle . If the username and password are correct, he will successfully log in otherwise they need to reset their credential and a message will appear and this is shown by a directed arrow with filled circle.

2.1.4 Cataloger Profile

A Cataloger of the catalogue may update his/her profile after login therefore directed arrow with empty circle is shown there.

2.1.5 Database

Here database plays important role in the authentication of the cataloger as well as a user and they can access the database according to their admin right to search components and update components of the catalogue directed arrow with the empty circle is shown there because of data transfer in both directions.

2.1.6 Delete Component

Cataloger can delete the outdated and never used component from the database that's why directed arrow with the empty circle is shown there.

2.1.7 Search Component

Cataloger can Search and then delete the update component from the database that's why the directed arrow with the empty circle is shown there.

2.1.8 Search Catalouge

User can find products by inputting part of the name of the product.This use case begins when the user inputs part of the name of the product he/she likes. The product will be found and then the user can select the product that's why the directed arrow with the empty circle is shown there.