

Lab Assignment

Course Code: CSE 3204

Course Title: Software Metrics Lab

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Requirement Size

Requirements and specification documents generally combine text, graphs, and special mathematical diagrams and symbols. The nature of the presentation depends on the particular style, method, or notation used. When measuring code or design size, you can identify atomic entities to count (lines, statements, bytes, classes, and methods, for example). However, a requirements or specification document can consist of a mixture of text and diagrams. For example, a use case analysis may consist of a UML use case diagram along with a set of use case scenarios that may be expressed as either text or as UML activity diagrams. Because a requirements analysis often consists of a mix of document types, it is difficult to generate a single size measure.

Number of Use Case

Definition: Counting number of usecase.

Type: Manual

Value: 16

Number of Actor

Definition: Counting the total number of actor for the application.

Type: Manual

Value: 4

Number of Stakeholders type

Definition: Counting the total type of stakeholders for the application.

Type: Manual

Value: 4

Number of Functional Requirement

Definition: Counting the total number of Functional Requirement

Type: Manual

Value: 13

Number of Activity Diagram

Definition: Counting number of activity diagram

Type: Manual

Value: 16

Number of Pages

Definition: Counting number of total page of the SRS

Type: Manual

Value: 58

Number of Figures

Definition: Counting number of total figures in the SRS

Type: Manual

Value: 17

Number of Tables

Definition: Counting number of total tables in the SRS

Type: Manual

Value: 16

Functional Point

Function Point (FP) is an element of software development which helps to approximate the cost of development early in the process. It may measure functionality from user's point of view.

External inputs: Those items provided by the user that describe distinct application-oriented data (such as file names and menu selections). These items do not include inquiries, which are counted separately.

External outputs: Those items provided to the user that generate distinct application-oriented data (such as reports and messages, rather than the individual components of these).

External inquiries: Interactive inputs requiring a response.

External files: Machine-readable interfaces to other systems.

Internal files: Logical master files in the system.

Calculate Functional Point for SPLII (Project Oviog):

A = External Inputs: 3

B = External Outputs: 4

C = External Inquiries: 6

D = External Files: 2

E = Internal Files: 3

we can compute the UFC by multiplying the number of items in a variety by the weight of the variety:

$$UFC = \sum (\text{Number of items of variety}_{(i)} * \text{weight}_{(j)})$$

$$UFC = 4A + 5B + 4C + 10D + 7E$$

$$UFC = 4*3 + 5*4 + 4*6 + 10*2 + 7*3$$

$$UFC = 97$$

Item	Simple	Weighting Factor Average	Complex
External Inputs	3	4	6
External Outputs	4	5	7
External Inquiries	3	4	6
External Files	7	10	15
Internal Files	5	7	10

The following formula combines the 14 ratings into a final technical complexity factor:

$$TCF = 65 + 0.01 * \sum F_i$$

To continue our FP computation for the Project Oviog, we evaluate the technical complexity factor. It seems reasonable to assume that F3, F5, F9, F11, F12, and F13 are 0, that F1, F2, F6, F7 and F14 are 2, and that F4, F8 and F10 are 5. Thus, we calculate the TCF as

$$TCF = 0.65 + 0.01(10 + 15)$$

$$TCF = 0.65 + 0.01 * 25$$

$$TCF = 0.9$$

Since UFC is 97, then

$$FP = 97 \times 0.9 = 87.3$$