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Scuola di Ingegneria Industriale e dell'Informazione

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Project

Reporting

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Summary

1. FUNCTION POINTS 2
2. COCOMO 4

1. Function Points

In this section of the document, we will estimate the theoretical number of LOC of our project using the FP algorithmic technique.
For our estimates, we will use the table available on slides shown during the lesson and reported at page 25 of the *COCOMO II Model Definition Manual*.

FUNCTION TYPE	COMPLEXITY-WEIGHT		
	Low	**Average**	**High**
Internal Logical File	7	10	15
External Interface File	5	7	10
External Input	3	4	6
External Output	4	5	7
External Inquiry	3	4	6

Internal Logical File (ILF)

ILFs are homogeneous set of data used and managed by the application.
MeteoCal manages data about:

- Events;
- Users;
- Notifications.

From these entities we derive two join tables that manage data about:

- Participants to an event;
- Addressees of a notification.

The first entity has a lot of attributes, so his structure justifies the use of an average value of complexity. The other two, instead, can be considered with a low weight.

ILFs VALUATION: 2 x 7 + 1 x 10 = 24 FPs

External Interface File (EIF)

EIFs are homogeneous set of data used by the application but generated and maintained by other applications.
MeteoCal uses *openweathermap.org* service to retrieve weather forecasts information. The XML file returned by the query contains a lot of data that we have to manage in different parts of the code and from which we extrapolate a specific number of information.

We use in this case the average complexity coefficient.

EIFs VALUATION: 1 x 7 = 7 FPs

External Input

External Inputs are elementary operations to elaborate data coming from the external environment.

MeteoCal interacts with not registered users (guests) that have the possibility to register themselves to the application. The *registration* functionality has a low complexity.

Almost all of the input comes from registered users who instead have available the following features (we report the complexity of each one surrounded by parentheses):

- Log in (L);
- Log out (L);
- Modify own profile (L);
- Search for other users (L);
- Create an event (M);
- Modify an event (M);
- Delete an event (L);
- Invite other users (L);

EXTERNAL INPUTS VALUATION: 7 x 3 + 2 x 4 = 29 FPs

External Output

External Outputs are elementary operations that generate data for the external environment.

MeteoCal automatically updates the information about weather forecast and generates notifications about them. This functionality is quite simple, so we can use a low weight.

EXTERNAL OUTPUTS VALUATION: 1 x 4 = 4 FPs

External Inquiry

External Inquiries are elementary operations that involve input and output, without significant elaboration of data from logic files.

MeteoCal users can require information about: user profile, user calendar,

notifications and event details. The first three requests are quite simple to handle, while the event details request manages a lot of data: participants, owner, weather forecast and event information.

EXTERNAL INQUIRIES VALUATION: 3 x 3 +1 x 4 = 13 FPs

Total FPs

The total number of Function Points is 24 + 7 + 29 + 4 + 13 = 77.
From this valuation we can derive an estimated number of SLOC (Source Lines Of Code) calculated as *AVC * Total FPs*, where AVC is equal to 53 for Java language.

ESLOC: 53 x 77 = 4081 lines of code

The real number of LOC is 3881.

2. COCOMO

In this chapter we will estimate effort and duration of the project using the COCOMO II formulas as described on slides used during the lesson.

$$Effort = 2.94 * EAF * (KSLOC)^{E}$$
$$Duration = 3.67 * (Effort)^{SE}$$
$$Number\ of\ people = Effort / Duration$$

Where EAF = 1.00, E = 1.0997 and SE = 0.3179.
In conclusion:

- Effort: 2.94 x 1.00 x $3.8^{1.0997}$ = 12.76 Person-Months
- Duration: 3.67 x $12.76^{0.3179}$ = 8.25 Months
- Number of people: 12.76 / 8.25 = 1.55 Person