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Software Engineering 2: My Taxi Service
Project **P**lan **D**ocument

Belotti Nicola 793419
Chioso Emanuele 791621
Colombo Andrea 853381

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Contents

1 Introduction

2 Function points

The Function Point estimation approach is based on the amount of functionalities in a software and their complexity. We will now provide a detailed description on the function points related to our application.

There are five estimators to take in account:

- Internal logic files
- External interface files
- External inputs
- External outputs
- External inquiries

This table defines the weights values that we've to use to perform the FP value.

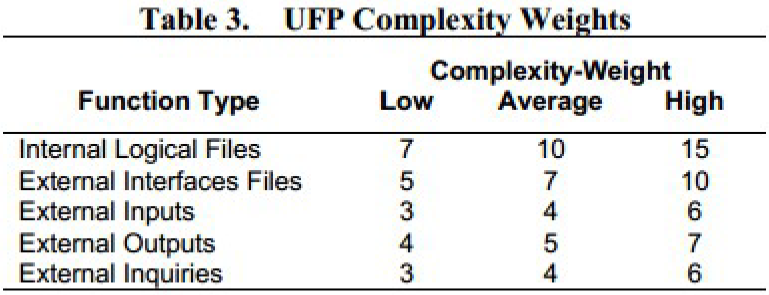

Table 3. UFP Complexity Weights

Function Type	Low	Average	High
	Complexity-Weight		
Internal Logical Files	7	10	15
External Interfaces Files	5	7	10
External Inputs	3	4	6
External Outputs	4	5	7
External Inquiries	3	4	6

Figure 1: Weights for all the different estimators

We will now proceed to identify all the elements and assign a value to them

2.1 Internal Logic files

An internal logic files is simply a data structure used in the application. The ILFs of our system are the following:

- User
- Passenger
- TaxiDriver

- Request
- Ride

User, passenger and taxi drivers can be assumed to be simple data structure. Request and ride are a little more complex so we'll treat them as average complexity.

2.2 External interface files

External Interface Files are a homogeneous set of data used by the application but generated by other applications.

The only EIF of our system is the interface of a map service we use for navigation. It can be considered as average complexity.

2.3 External inputs

External Inputs are operations to elaborate data coming from the external environment. The EIs of our system are:

- Registration
- Login
- Simple request
- Taxi reservation
- Driver availability

Login, request, reservation and driver availability are inputs with low complexity. Registration is more complex (average complexity)since it involves a bigger amount of data and components.

2.4 External outputs

External Output is an elementary operation that generates data for the external environment. The EOs of our system are:

- Notifications to users
- Notifications to taxi drivers

Both of this outputs can be considered of low complexity.

2.5 External Inquiry

External Inquiry is as an operation that involves input and output, without elaboration of data. The EQs of the system are:

- Taxi driver ride request
- Ride sharing

Ride request to taxi driver is simple (low complexity). On the other hand, ride sharing requires a lot of operations since it can be considered of high complexity.

2.6 Summary

Internal logic files score: 3 low complexity + 2 average complexity: $3 * 7 + 2 * 10 = 41$

External onterface files score: 1 medium complexity: 7

External inputs score: 4 low complexity + 1 average complexity: $4 * 3 + 1 * 4 = 16$

External outputs score: 2 low complexity: 4

External inquiries: 1 low complexity + 1 high complexity: $1*3+1*6 = 9$

The total is of $41 + 7 + 16 + 4 + 9 = 77$

2.7 Source lines of code

The conversion multiplicator from function points to SLOC is 53 for the Java language: hence we have $77 * 53 = 4081$ lines of code.

3 Cocomo

We use cocomo model to provide an approximate cost estimation on the project and the time needed to develop the software.

3.1 Effort estimation

COCOMO formula for calculating the effort is $E = bKLOC^c$ Where KLOC is kilo lines of code calculated in the previous section and b,c two parameters that changes in relation to the nature of the project. We will develop my taxi service basing on previous existing technologies, not from scratch, so it is safe to say that my taxi service belong to the organic class of projects. For organic projects b = 2.4 and c = 1.05, so E = 10.75

3.2 Time estimation

COCOMO formula used to calculate the time needed to develop the software is $E = cKLOC^d$, where c and d are constants, for organic projects c = 2.5 and d = 0.38, hence T = 4.23.

4 Tasks

5 Risks

6 Appendix