PGPI

Práctica 4

Estimación del coste del proyecto

Autor
Abdullah Taher Saadoon AL-Musawi
Y
OSCAR RUBIO GARCÍA

Escuela Técnica Superior de Ingenierías Informática y
de Telecomunicación

—

Granada, Octubre de 2019

1- Estimate for functional decomposition

A decomposition into modules has been carried out and an effort is planned for each of those in persons / month.

Module	Estimated effort
DB	0,9 p.m
Model	1,9 p.m
Algorithms	6,5 p.m
Networks	2,75 p.m
UI	4,6 p.m
TOTAL	**16,65 p.m**

Works expenses: 4000€/pm * 16,65pm = **66.600€**

2- Activity Decomposition

Module	Plan	Análisis	Diseño	Código	Test	TOTAL
DB		0,1	0,3	0,15	0,4	0,95
Model		0,2	0,8	0,1	0,2	1,3
Algorithms		0,5	1	3,5	1,5	6,5
Networks		0,8	0,6	0,5	1	2,9
UI		0,6	2	1	1	4,6
Total	0,3	2,2	4,7	5,25	4,1	16,55
%	1,812688822	13,2930514	28,3987915	31,7220544	24,7734139	100
Salary	Estimate					
4000	66200					

3- Estimate of project size

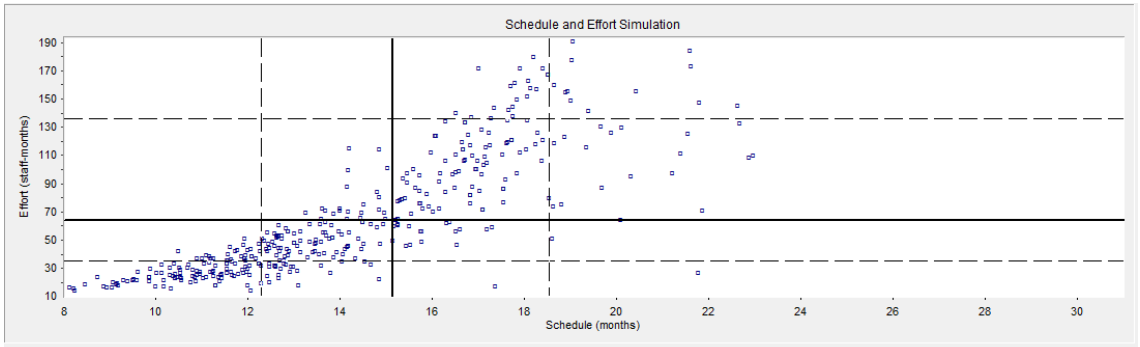
Module	Estimated effort
DB	45 KLOC
Model	60 KLOC
Algorithms	60 KLOC
UI	60 KLOC
	225 KLOC

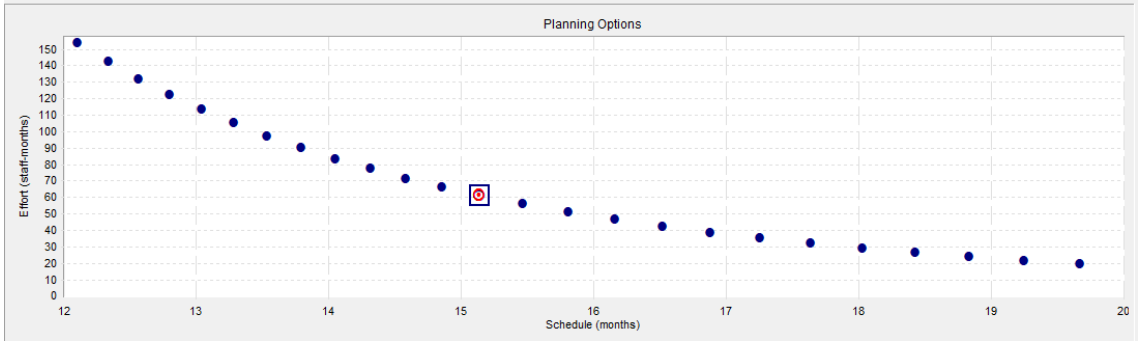
Average productivity**: 4 KLOC / pm**

$$\frac{225\ KLOC}{4KLOC/PM} = \mathbf{63,75\ pm}$$

Works expenses: 4000€/pm * 63,75pm = **255.000€**

4- 5. Estimation with software tools (Construx Estimate Graphs)





Construx Estimate Optimum Plan

Optimum Plan
[priorities set by estimator]

Effort: 64 staff-months
Schedule: 15,1 months
Peak Staff: 6,0 staff
Cost: n/a

Project planning is currently not affected by constraints.

5- COCOMO II Estimate

Parámetro	Management Platform
SF1 PREC	2,48
SF2 FLEX	4,05
SF3 RESL	4,24
SF4 TEAM	4,38
SF5 PMAT	4,68
Sum SFj	19,83
EM1 RELY	1,26
EM2 DATA	1,14
EM3 CPLX	1
EM4 RUSE	1
EM5 DOCU	1,11
EM6 TIME	1,11
EM7 STOR	1
EM8 PVOL	1,15
EM9 ACAP	0,85
EM10 PCAP	0,88
EM11 PCON	1
EM12 APEX	1
EM13 PLEX	0,91

EM14 LTEX	1
EM15 TOOL	0,9
EM16 SITE	0,93
EM17 SCED	1
Mul Emj	1,159545093

KLOC	Effort
5000	42874,93047

6- Putnam model

In this case we will make an empirical estimate using the Putnam model. It is a multivariable dynamic model derived from real data collected from more than 4000 projects. Use the following formula:

$$E = B \times \left(\frac{LOC}{P}\right)^3 \times \frac{1}{t^4}$$

E	Esfuerzo (personas-año)
t	Duración del proyecto (años)
B	Factor de escala: "skills factor"
P	Parámetro de productividad

t = duration = 9 months = 0.75

B = 0.39 KLOC: almost equals 70K

P = 10,000

$E = 0.39 * (\frac{71000}{10000})^3 * \frac{1}{0.75^4} = 441pm$

4000€/pm * 441pm = **1.764.000€**