

# Software Economics

CPIT-456

## Exercise #02



Elaf Yousef Aloufi  
1911265

Section: DAR

You are required to estimate the effort needs to develop (*Employee Attendance System*) for small company (20 to 60 employees) using COCOMOII Post-Architecture model. The project has Collaborative team members and they worked before on a similar project. Moreover, they have a high-level experience of the programming language and the software tool (*LTEX*).

EAF - Prototype

base + Incr % = rating

Product:	RELY	DATA	DOCU	CPLX	RUSE
base	NOM	NOM	NOM	NOM	NOM
Incr%	0%	0%	0%	0%	0%

Platform:	TIME	STOR	PVOL
base	NOM	NOM	NOM
Incr%	0%	0%	0%

Personnel:	ACAP	PCAP	PCON	APEX	LTEX	PLEX
base	NOM	NOM	HI	NOM	HI	NOM
Incr%	0%	0%	0%	0%	0%	0%

Project:	TOOL	SITE
base	NOM	NOM
Incr%	0%	0%

User:	USR1	USR2
base	NOM	NOM
Incr%	0%	0%

EAF is also affected by Schedule

EAF: 0.82

OK Cancel Help

EAF - Implementation

base + Incr % = rating

Product:	RELY	DATA	DOCU	CPLX	RUSE
base	NOM	NOM	NOM	NOM	NOM
Incr%	0%	0%	0%	0%	0%

Platform:	TIME	STOR	PVOL
base	NOM	NOM	NOM
Incr%	0%	0%	0%

Personnel:	ACAP	PCAP	PCON	APEX	LTEX	PLEX
base	NOM	NOM	HI	NOM	HI	NOM
Incr%	0%	0%	0%	0%	0%	0%

Project:	TOOL	SITE
base	NOM	NOM
Incr%	0%	0%

User:	USR1	USR2
base	NOM	NOM
Incr%	0%	0%

EAF is also affected by Schedule

EAF: 0.82

OK Cancel Help

First, a simple prototype will be designed for the system using Visual Basic with 2500 SLOC and 10 REVL.

SLOC Input Dialog - Prototype

**Sizing Method**

- ☒ SLOC
- ☐ Function Points
- ☐ Adaptation and Reuse

**Breakage**  
% of code thrown away due to requirements evolution and volatility

REVL

**Module Size in SLOC**

Language

SLOC

OK Cancel Help

Then the system will be developed using Java programming language. The system has 2 internal logical files (*simple*). Also, the system receives inputs (*simple*) from employees and human resources unit. In addition, the system should generate responses to queries (*simple*) and some reports and outputs (*medium*).

SLOC Input Dialog - Implementation

**Sizing Method**

☐ SLOC  
☒ Function Points  
☐ Adaptation and Reuse

**Breakage**  
 % of code thrown away due to requirements evolution and volatility  
 REVL

**Module Size in Function Points**

Language   53

Ratio Type : ☒ Jones ☐ David

Calculation Method : ☒ Using Table ☐ Input Calculated Function Point

Function Type	# of Function Points			SubTotal
	Low	Average	High	
Inputs	<input type="text" value="2"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	6
Outputs	<input type="text" value="0"/>	<input type="text" value="4"/>	<input type="text" value="0"/>	20
Files	<input type="text" value="2"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	14
Interfaces	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	0
Queries	<input type="text" value="3"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	9
Total Unadjusted Function Points				49
Equivalent Total in SLOC				2597

OK Cancel Help

Write your *Name\_ID\_Section* as a project note in the CoCoMo tool.

Project Name: **Lab7Exercise2** Scale Factor: 18.97

**Project Notes**

X	Module Name	Module Size	LABOR Rate (\$/month)
	Prototype	S:2750	0.00
	Implementation	F:2597	0.00

Project Note

Project Name: Lab7Exercise2

Elaf\_1911265\_DAR

OK Cancel

USC-COCOMO II.2000.4 - C:\Users\ASUS\Desktop\ElafAloufi\_1911265\_DAR\_HW2.est

File Edit View Parameters Calibrate Phase Maintenance Help

Project Name: **Lab7Exercise2** Scale Factor: 18.97 Schedule

**Project Notes** Development Model: Post Architecture

X	Module Name	Module Size	LABOR Rate (\$/month)	EAF	Language	NOM Effort DEV	EST Effort DEV	PROD	COST	INST COST	Staff	RISK
	Prototype	S:2750	0.00	0.82	Visual Basic	9.6	7.8	351.4	0.00	0.0	0.9	0.0
	Implementation	F:2597	0.00	0.82	JAVA	9.0	7.4	351.4	0.00	0.0	0.8	0.0

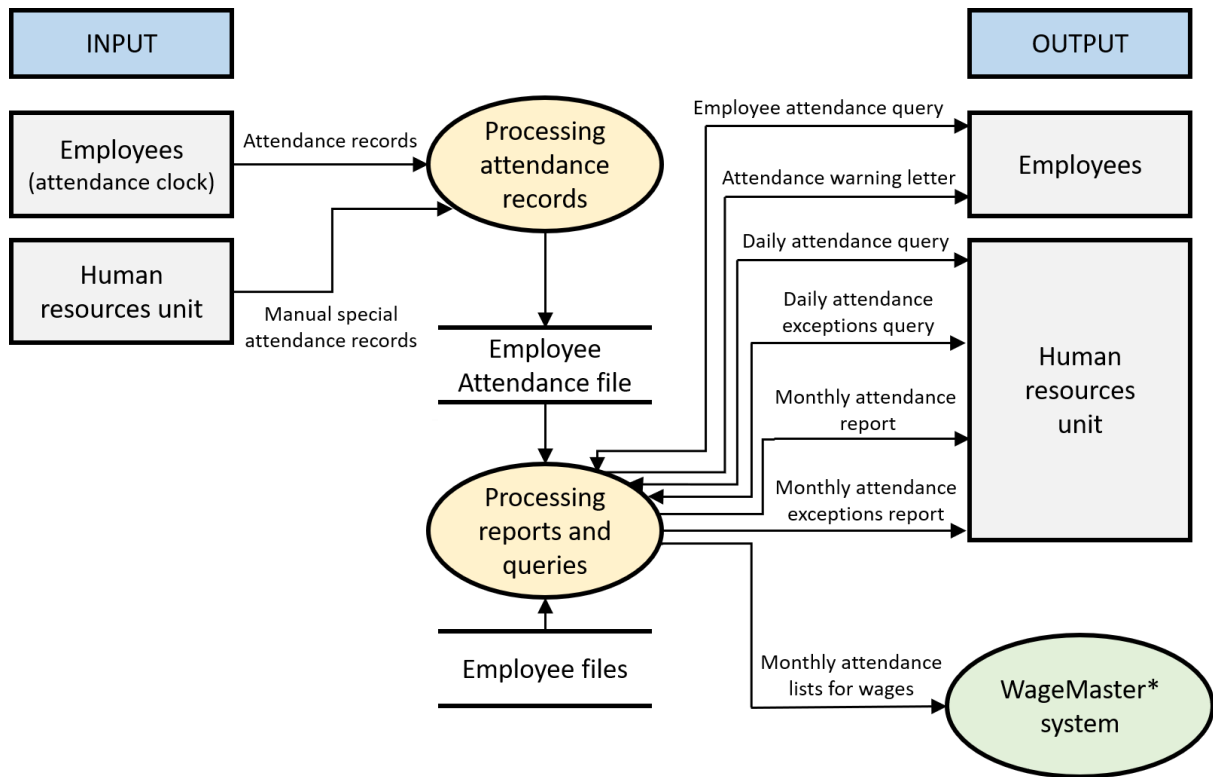
Total Lines of Code: 5347

Hours/PM: 152.00

	Estimated	Effort	Sched	PROD	COST	INST	Staff	RISK
Optimistic	12.2	8.1	439.2	0.00	0.0	1.5		
Most Likely	15.2	8.7	351.4	0.00	0.0	1.7	0.0	
Pessimistic	19.0	9.4	281.1	0.00	0.0	2.0		

Project Is Saved To File : C:\Users\ASUS\Desktop\ElafAloufi\_1911265\_DAR\_HW2.est

## Data flow diagram:



\* **Wagemaster** is a desktop, networkable, integrated payroll and human resource management software.