

# Exercises on project estimation

# Situation

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- ▶ We aim at estimating the resources needed for developing the following project
- ▶  $S = 60,000$  NCSS (medium size)
- ▶ Some requirements are rigid
- ▶ The software can be developed in any programming language
- ▶ A similar (but not the same) project has been developed
- ▶ The software will be exploited by Web interface
- ▶ The software needs a small but reliable database

# Exercise 1

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- ▶ Estimate the needed effort by applying the basic and the intermediate CoCoMo models
  - ▶ Cost in person-months
  - ▶ Delivery time
  - ▶ Cost in Euros

## Exercise 2

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- ▶ Starting from the previous results of needed person-months, apply the Putnam model to estimate the delivery time given an E factor of 15000
- ▶ How does the K varies if we schedule a delivery time of 0.5, 1, and 1.5 years?
- ▶ Note: Putnam model considers person-years

## Exercise 3

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- ▶ Given the following scheduling for the project activities in weeks, build the PERT diagram and apply the CPM to:
  - ▶ Calculate  $t_{\min}$ ,  $t_{\max}$  for each node
  - ▶ Calculate the project duration
  - ▶ Identify the critical activities
  - ▶ Calculate the slack of each non critical activity
- ▶ What happens if the G activity is delayed of 1 week?

# Exercise 3 - scheduling

Activity	Precedence	to	tm	tp
A		2	3	4
B		4	5	12
C	A	2	2	3
D	B,C	3	5	7
E	D	3	3	9
F	E	3	3	3
G	B,C	4	10	10
H	F,G	2	3	4

## Exercise 4

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- ▶ Given the following activities, define the precedence, estimate the duration for each activity, then build the PERT diagram and apply the CPM to:
  - ▶ Calculate  $t_{\min}$ ,  $t_{\max}$  for each node
  - ▶ Calculate the project duration
  - ▶ Identify the critical activities
  - ▶ Calculate the slack of each non critical activity

# Exercise 4 - activities

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- ▶ Organize a conference with 4 speakers
  
- A. Decide the content in collaboration with the city administration
- B. Define the 4 speakers
- C. Decide the date with the speakers
- D. Reserve the room
- E. Print the flyers
- F. Order the desk and the chairs for the room
- G. Distribute the flyers
- H. Print the posters for the room
- I. Arrange the room with desk, chairs, posters