SE 4381, Software Project Planning and Management
Homework #2 – COCOMO II

You are estimating the effort and schedule needed to implement a new traffic light control system. The estimated size of the system is 80 KSLOC.

This is a life-critical system since failures can lead to serious accidents.

This is the third product in a traffic-light product line, with this release being built for an international customer.

The team is very highly knowledgeable and experienced in this application domain and with these tools and can be considered very highly qualified and collaborative.

Development will be done by a virtual team, distributed between the company's development center and an "on-site" team run by a local partner.

The organization has been assessed as a CMMI maturity level 4 organization.

Use the COCOMO II Post-Architecture Model to estimate the effort and schedule for this project (tables listed as "Boehm, 2000" under References). The default value for each factor is Nominal.

Show your work; in particular, state (briefly) why you set each non-nominal factor to the value that you chose. Explicitly list the category (Very Low to Extra High) and value (e.g., 0.88 or 4.39) for each scale factor (all five) and each non-nominal effort multiplier.

Effort Multipliers

EM	Description	Category	Value
RELY	required software reliability		
DATA	database size		
CPLX	product complexity		
RUSE	develop for reuse		
DOCU	documentation match to LC needs		
TIME	time constraint		
STOR	storage constraint		
PVOL	platform volatility		
ACAP	analyst capability		
PCAP	programmer capability		
APEX	applications experience		
PLEX	platform experience		
LTEX	language and tool experience		
PCON	personnel continuity		
TOOL	use of software tools		
SITE	multi-site development		
SCED	required development schedule		

Scaling Factors

SF	Description	Category	Value
PREC	precedentedness		
FLEX	development flexibility		
RESL	architecture and risk resolution		
TEAM	team cohesion		
PMAT	process maturity		

Rationale for non-nominal values:

Grading Rubric

Getting a "correct" value for PM and TDEV is worth 10 points each, given the values decided for the scale factors and effort multipliers.

Identifying scale factors and effort multipliers correctly, 80 points total.

Adding non-nominal effort multipliers
- if you included a reasonable rationale
- if the rationale was inadequate (a judgement call for the grader) but not totally unrealistic, -1 point
- if no rationale (or a bad rationale) was provided, -5 points each

Not addressing a non-nominal effort multiplier correctly (wrong value), -1 point each
- not including an effort multiplier implies a value of 1 (nominal), which would be incorrect if it should not have been nominal

Not addressing a scale factor correctly (wrong value)
- reasonable rationale, no penalty
- inadequate rationale, -1 point
- missing or bad rationale, -5 points

Remember that the nominal value for a scale factor is not 0 (or 1)
- the Extra High values for scale factors are 0