**COCOMO**

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| Multiplier | Rationale | Rank | Value |
| RELY | The software that we are providing is made for school purposes, to help the student save time and convenience and is not required for any work environment. | Very Low | 0.75 |
| DATA | The only data required to run the software are | Low | 0.94 |
| CPLX | The software would need to store and save available courses into the database. | High | 1.15 |
| TIME | The software will not put much time constraint on the system. | Nominal | 1 |
| STOR | The software does not need a lot of memory to run. With the current memory available on computers we would need less than 50% of memory available. | Nominal | 1 |
| \*PCON | There will be no personnel turnover in this project. We have 5 group members and all group members are predicted to stay until the end of the project. | Low | 0.87 |
| \*ACAP | We have two members who have experience analyzing projects and reviewing them. However, the other members of the group have no experience in analyzing a project | Nominal | 1.00 |
| \*AEXP | Our team members have between one to three years of application experience. | Low | 1.13 |
| \*PCAP | Our software is using some very basic functions of Java as well as Javascript, PHP, and HTML/CSS | Nominal | 1 |
| \*PEXP | Although our team members are in their Senior year, most of the members have not yet gotten the chance to experience and practice a lot of software involving Javascript and database systems. | Very Low | 1.21 |
| LEXP | Most of our members are in their Senior year of GSU | High | 0.95 |
| MODP | The degree to which modern programming practices are used in developing the software is high. The development of the software will be done using PHP, HTML/CSS, and Javascript design. | Very High | 0.82 |
| \*LTEX | We are using Eclipse to develop in Java. We have members already experienced with those software and the language. | Very Low | 1.24 |
| SCED | The software has a deadline and cannot be delayed. However, there is enough time to be able to finish the program in time. | Nominal | 1 |

**Calculation of E :**

Effort Adjustment Factor (EAF) = 0.81

ai = 3.2 for an organic application

bi = 1.05 for an organic application

KLOC = 6000 lines of codes / 1000 = 6

If we apply those variables obtained in the formula, we get:

E = ai \* KLOCb \* EAF

E = 3.2 \* 6^1.05 \* 0.81  
E = 17.0 Programmer Months

Assuming that the programmers and analysts cost $8,000 per person-month, the total cost of project personnel will be :  
DOLLARS = (17.0 PM) \* ($8,000 per PM) = $136,000

**Calculation of D :**

Now here is the estimation of the development time:

Cb = 2.5 for an organic application

Db = 0.38 for an organic application

E = 17.0 PM

If we apply those variables obtained in the formula, we get:  
D = cb \* Ed

D = 2.5 \* 17^0.38  
D = 7.34 months

**Trade-off investigation :**  
**A**. What if we use more capable personnel and get cost expense = extra $1,000 per PM (the cost is now $9,000 per PM). We must re-evaluate our effort multipliers to determine what kind of trade-off we have produced :  
  
 Analyst capability = 0.86 (from 1.00)  
 Programmer capabilities = 0.86 (from 1.00)  
  
 Effort adjustment becomes 0.60  
 E becomes 12.6 PM  
   
DOLLARS becomes 12.6 PM \* $9,000 per PM = $113,400  
We notice that we actually save $23,000 by hiring more experienced personnel !

**B**. What if we have a personal that is less experienced in terms of programmer capability but that we can pay for less (let’s say $2,000 cheaper). We must re-evaluate our PCAP multipliers to determine what kind of trade-off we have produced :  
  
 Programmer Capability = 1.17 (from 1.00)  
  
 Effort adjustment becomes 0.94  
 E becomes 19.7 PM  
  
DOLLARS becomes 19.7PM \* $7,000 per PM = $137.900  
We notice that we have a slight cost increase of $1,900.