Answers for the attached assignment are due **(Thursday, March 3rd, 2005)** IN-CLASS . Please don't send your answer as an email .It will not be accepted unless it is submitted in class , on time , in the first 10 minutes of the class meeting . If you failed to do so , you will get no points for this 70 points (7%) mandatory assignment (unless for very well documented and convincing reasons).

Again , this is a mandatory assignment and NOT for extra credit. Please write your full name , course and section number and date on the answer sheet. Late assignments will not be accepted and cannot be emailed later.

(Submit your answers ONLY as a HARD COPY IN CLASS and NOT online. Any online submissions for this particular assignment will get no points..No Exceptions!!. This is an INDIVIDUAL assignment and any collaboration is TOTALLY prohibited. You are welcome to discuss the inputs but NOT the outputs .All copies will receive no points regardless of which was the original)

Thank you and good luck!

Answer the following TWO questions (on page 1 and page 2):

Question 1 (Cost-Benefit Analysis) :

Assuming monetary benefits of an information system at $60,000 per year, one-time costs of $30,000 recurring costs of $25,000 per year, a discount rate of 10%, and a Four–year time horizon, calculate the following:

1- **Net Present Value of these costs and benefits of an information system.**
2- **Overall Return on Investment of the project**
3- **Break-Even point. At what point does break-even occur?**
4- **If you were the manager of a company and these results were introduced to you to make a decision whether to accept or reject this project , what would be your decision? (Please justify your decision clearly and precisely)**

- *(It is required that you use an Excel or any similar spreadsheet application to solve this problem)*
- *Assume that intangible benefits are already converted into the monetary benefits and they do not need to be re-considered.*

Continued on Page 2 …….

Question 2 (COCOMO and Function Points) :

Suppose the requirements specification for the inventory management module of the XYZ project have been carefully analyzed and the following results have been determined. There is a need **for 12 inputs, 13 outputs, 8 inquiries, 10 files, and 12 external interfaces.** Also, assume **input, output and external interface** function point attributes are of **high complexity** and **all other** function point attributes are of **low complexity**.

The complexity adjustment value for factor 1 is set to 5 because the SRS requires that the software product have a reliable back-up; factor 2 is also set to 4 because the SRS emphasizes the need for high reliability in data communication; factor 5 is set to 2 because the module is NOT heavily used; factors 6 and 8 are set to 2 because the module is NOT always on-line; all other factors are set to 1 because their effect is minimal.

Accordingly , answer the following questions showing the full computation procedure for each question:

1- **What is the FUNCTION POINTS (FP) for the inventory management module of XYZ project?**
2- **What is the ADJUSTED FUNCTION POINTS (AFP) for the inventory management module of XYZ project?**
3- **What is the approximate number of LOC in the following languages:**
   - **"C" programming language**
   - **"Visual Basic" programming language**
4- **Explain the reason for the difference in LOC between C and Visual Basic in question 3?**
5- **Calculate the estimated schedule time using COCOMO following basic model and "Visual Basic" programming language (based on your answer in part 3 of this question):**

$$\text{Efforts} = 1.4 \times \text{KLOC}$$
$$\text{Scheduled time} = 3 \times \text{efforts}^{1/3}$$

6- **Based on the calculation in part 5 of this question, how many people will be needed to develop the system in terms of well-trained full time staff?**
7- Define the **units** used to measure **efforts and schedule time** in **COCOMO**?
8- **Answer questions 1,2 and 5 again using COSMOS41 CASE tool?**
9- **Are your results for question 8 identical to the ones previously obtained? Explain why?**
10- **Do you think that Function Points is better than COCOMO? Explain?**

End of Assignment