Learning Journal

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Key Concepts Learned:

In **Chapter 3** -The main concepts convered in the third week was chapter 3 which is about Effort and Cost Estimation. Learned different techniques of estimating cost and effort in a project, Later on in the chapter we discuss on schedule estimate and resource esitmate. “Estimating effort in software product is difficult as the result of effort is **intangible** and difficult to make effort estimation”- question I went wrong in the class exercise. Estimation techniques are mainly divided into **Experienced-Based** and **Algorithmic Cost Modeling**. Some of the main techniques for effort estimations are

- Function Point Analysis(FPA)
- Delphi
- COCOMO etc.

Experienced-Based Estimation approaches are divided int estimation by analogy i.e, to Estimate new projects by comparing them to similar past projects, preferably decomposing the estimate. Compare the size of the new Project to a similar past project. **Multiplication factor** (subsystem) =(number of elements in New) / (number of elements in Old). If uncertain in a case of a subsystem, produce an effort range, for instance, factor of 0.75 to 2.25 for 50% uncertainty. It usually helps to get a group of people involved in the effort estimation and to ask each member of the group to explain their estimate.

Function Point Analysis: Function point metrics provide a standardized method for measuring the various functions of a software application. Function point metrics, measure functionality from the users point of view, that is, on the basis of what the user requests and receives in return. Measure functionality that the user requests and receives, measure software development and maintenance independently of technology used for implementation. One of the main drawback of FPA is **not** being **universally applicable** to all types of software

- Counting boundary - The border between the application or project being measured and external applications or the user domain.
- A boundary establishes which functions are included in the function point count

Calculation of the UFP :

- Internal Logical File (ILF): a user identifiable group of logically related data or control information maintained within the boundary of the application
- External Interface File (EIF): a user identifiable group of logically related data or control information referenced by the application

- External Input (EI): An EI processes data or control information that comes from outside the application's boundary.
- External Output (EO): An EO is an elementary process that generates data or control information sent outside the application's boundary
- External Inquiry (EQ): An EQ is an elementary process made up of an input-output combination that results in data retrieval

Delphi: is another approach in which each team member estimate pieces of the project individually, and then meet to compare estimates. Average the each members estimate and arrive at an estimate in which the whole team members accepts.

COCOMO cost modeling: based on prior experience and its independet model. Then comes **COCOMO2**, The basic CoCoMo model assumes that the effort is only a function of the number of lines of code and some constants evaluated according to the type of software system. CoCoMo II has been designed to accommodate estimates required at different stages by having models for three different stages.

Once effort estimates are made for the project, cost estimates are calculated based on the effort estimate and cost parameters like hourly salary of individual employees. In iterative models, software products are built in small incremental cycles. On the contrary in the waterfall model, software products are built in one go and thus all product features are fully built in the same one cycle.

Reflections on Case Study/course work:

In the class we had an example of two software projects, namely AccSellerator is a **past project**, Triad is a **new similar project**. We compare it for the estimation by Analogy, over here we compare past project with a current one, here we compares the numbers of database, web pages, graphs and tables, classes used by the previous project to estimate the effort needed to the new project.
By this example, the concept was clear and understood, here we calculate the multiple factor by which we need to multiple the values of entities in our new project and we find the new effort estimate of the project.

Collaborative Learning:

Class is active in Collaborative learning as we had many discussions in class and anyone can answer others doubts. Also regarding the group project we had our first meeting, had a discussion on the project topic and divided the work among us. Later on we had created a common word document and all have started working on their part in the project. The group project is going smoothly so far, all are dedicated to their own work, I have half completed my part and planning to complete the initial stage in the coming week.

Further Research/Readings:

I have read chapter 3 and 4 for the week3 itself, but we could complete both of them in 2 weeks, Reading the chapters before the lecture was very helpful in understanding the concepts well in advance. Cost estimation was the field I was not at all aware off till this, while reading the chapters I had many doubts, but in the lecture when my peers had a discussion, the concept went clear.

Adjustments to Goals:

Since last week, we were instructed to read chapters 3 and 4, but in week3 we could only complete chapter 3 in class and on week4 we completed chapter 4 Risk Management. All the concepts were clear to me and interesting, We have decided to complete chapter 5 in next lecture. I have to revise the techniques for effort estimation a bit, since it was a little confusing and have to thoroughly understand the concept. After revising the previous chapter concepts, planning to read chapters 5 and 6 for the upcoming week.

Abbreviations:

SPM - Software Project Management.
FPA - Function Point Analysis