I J C T A, 9(24), 2016, pp. 17-23 ISSN: 0974-5572

Dynamic task based ACEM-1

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ABSTRACT

Software Cost Estimation is the word used by the every software developer for the better cost estimation models for the developed projects. Cost estimation is the model which predicts the upcoming problems with the cost of the project, planning, resource management etc. A mere few are in use in spite of so many Software Cost Estimation techniques are projected since long. In this paper, we are proposing a dynamic task based ACME model which is used to show the accuracy in the cost estimation and the change of cost dynamically according to the task added to the project. This paper provides Advanced integrated planning of a project, cost estimation according to the tasks, resource management and time management. Experimental results shows according to the project we are developing. Our project is taken from the software company. Our aim is to show the total no of modules, tasks in each module, cost based tasks, resource allocation based on modules and tasks.

Keywords: Dynamic cost estimation, planning, resource management, time management.

1. INTRODUCTION

The serious problem of software is cost estimation and project management. In the real world till now according to the research. No one can estimate the exact software cost estimation and project management though they have taken so many steps to work on the project. Here some of the research has been done with cost estimation models. These are some of the questions to be answered: how can we estimate the time and effort for development of the project. How the cost of project varies for time to time [1]. What are the problems occurred when the time of development of the project. Software cost estimation is the main activity in development of software applications to satisfy minimum conditions available in client requirement process.

Estimating the Software development cost depends on Human effort commonly called as person months, which converts into scheduled time and effort in terms of dollars. The desired precision of software cost estimation before the beginning of the product is very essential for software development industries based on augment and ameliorates of the software efforts are harmful for software development applications.

- It can group and organize advancement ventures regarding a general strategy for success.
- Total no of modules M.
- Total no of tasks T.
- Total no of resources R.
- Total no of time taken for each task development TD.
- It can be utilized to figure out what assets to focus on the venture as well as how the required assets are going to be applied.
- These are can be useful to evaluate the outcome of changes and backing remodeling.

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- Undertakings can be simpler to oversee and manage when assets are best coordinated to genuine requirements.
- Clients anticipate that real improvement expenses will be in accordance with evaluated costs.

There are two types of projects in the real world.

1) Client based
2) Product Based

Client Based: The project which develops according to the client requirement. Here when we start the application with planning, time management and resource management but the we lost accuracy of time management with the updated client requirement. Every time if the client wants the new updates irrespective of the requirement it may affect the delivery of the project and cost estimation of the project.

Product based: The project with basic requirements and functionality that are predefined by the user. In the real world, with the same functionality and requirements there are so many software products are available. But there is no need of dynamic cost estimation for this because at the time of planning the programmer can decide the cost estimation of the project.

2. COST ESTIMATION PROCESS

Fetched estimation is a vital piece of the arranging procedure. For instance, in the top-down arranging approach, the expense appraisal is utilized to infer the task arrangement

- The task director adds to a representation of the general usefulness, product size, development procedure, flat form, individuals, and expected quality for the project.
- A large scale level appraisal of the aggregate exertion and timetable is created utilizing a product effort estimation model
- The undertaking chief parcels the exertion gauge into a high-level determination of required tasks and critical elements. Additionally parcels the calendar into significant development of dates and finalize the technical staff who are necessary for the project based on complexity the tasks, which together structures an undertaking arrangement. The real cost estimation procedure includes seven stages [5]:

1. Build up expense evaluating goals.
2. Develop a task which meets the necessary data and resources of the system form user side.
3. Connect programming prerequisites.
4. Be understood and make proposed product framework as realistic.
5. Utilize a few autonomous expense of software estimation strategies to gain by their joined qualities.
6. Analyze distinctive indicator and emphasize the Software Estimation Process
7. Once development of the task starts, screen its genuine cost and advance, and input results to venture administration.

- Regardless of what type of Cost Estimation Model is preferred, clients must pay consideration on the accompanying to produce the reliable output.
- Based on range of the evaluation (a few techniques create effort for the full length life-cycle, while compare with others make exclude exertion for the necessity step), Adjustment and presumptions of the specified model. Affectability of the evaluations to the unique model considerable parameters.
- Variation of the assessment concerning the genuine expense.

3. LITERATURE SURVEY

Software Cost Estimation is essential for industry people, it has developed by H.Rubin and computer Associates and it is offered as package. This model proposed five distinct modules.

- Tasks designed as per function point analysis
- Programming complexity
- An effort in terms of proposed parameters (to identify the effort on coding and maintenance), etc. it considered as most important module
- User-organization
- Proposed product size

In this module the user should answer to the questions which are related to user organization.

It proposed 25 questions which related to complexity and partly about user organization the model is not clear about the expected effort estimation as per user organization. Closed model is describing the estimation of effort in terms of cost.

SPQR-20 **(**Software Productivity Quality and Reliability)

This technique was developed by Jones C and it can be applicable to any type software product to predict the cost before going to develop a product. It is also identified the expected duration in terms of months. By using this model we can calculate maintenance cost also. SPQR uses FPA to identify the product size of a project. This model is developed by using the previous database of the developed projects. This model have four versions i.e. SPQR 10, 20, 50 and 100. The number indicate in this model specifies, how many question are answered. At that moment SPQR-20 was available for commercial purpose, but it was not marketed by C. Jones

Fei et al., reported some of the available models to handle the suspicions and ambiguity of cost models. Fei and Liu, 1992) reported the COCOMO they started to describe about the fuzziness on this model. They identified the difficulties to assign specific number for this model, because it is very complex issue to find the reliable cost of Delivered Source Instruction and it cannot be finished prior stating of the product. Ryder (1998).

Idri et al. said that what are parameters reported by COCOMO with fuzzy modeling technique and Function-Points analysis (2006), which needs to be considered; Huang et al. (2006) survey on Intermediate COCOMO model which was applicable on logic to the cost drivers.

Finally all these models are reported to be different with considerable parameters required to find out the cost of the software product. But all these models have some gaps to be identified so that the accuracy of the software cost can be known before going to start the product as per user requirements. Our proposed model will fill these gaps and it can define the accurate cost.

4. PROBLEM STATEMENT

Developing the cost estimation tools is difficult. Before estimating the cost estimation for project we have to identify the problems may occur before the development of the project. In this paper, proposed task based cost estimation i,e. according to the task the cost & time of project is dynamically changed. This process will be applicable for both the client based and product based also if required.

5. PROPOSED WORK

Our proposed model is completely concentrates on the tasks which are going to be developed in the concern project. We reported in this Dynamic and integrated Cost estimation model, that develops related to the

task, the time management, the resource management. Here we considered the result of the analysis before and after the task, and to incorporate the changes according to the cost estimation technique as well as according to the processes. In this paper, an integrated task based ACME approach is implemented. Each project is divided into modules i.e. functionality based on dividing of the project. Each module is again subdivided into tasks. I,e in module there are no of tasks. According to the each task is based on functionality and lines of code. Time calcation is also difficult to estimate the development of the each task. Dynamic resources allocation is key factor to get the output at the estimated time. In this paper, resource allocation is also done by the integrated task based ACME.

6. TASK BASED COST ESTIMATION

In this paper, we provided integrated task based ACME approach is implemented. the paper undoubtedly points out the causes for inaccuracy in estimation. Attributes play the very important role to generate accurate cost with reliability, which improves the view on product attributes and their relation. Based on the designed tasks we have to measure the software complexity and the required parameters, and consider for cost estimation process that needs to be meticulously designed and followed through. Remember one cost estimation method may not applicable for all type of computer software and it can fulfill some specific type of projects.

7. EXPERIMENTAL RESULTS

Based on the parameters given below

- Total no of modules M.
- Total no of tasks T.
- Total no of resources R.
- Total no of time taken for each task development TD.

$$M = \frac{m1 + m2 + m3 + \ldots mn}{Total\ Number\ of\ Modules}$$

$$T = \frac{t1 + t2 + t3 + \ldots tn}{Total\ Number\ of\ tasks}$$

$$R = \frac{MXT}{TD}$$

Our project is client based project called crime report management. Total modules are divided into 4 modules.

1) Admin
2) Prisoner Details.
3) Compliant
4) FIR.

This is the sample project how we can divided into modules based on the functionality. Each module contains no of tasks. Here we are giving some tasks belongs to the module.

Code for the prisoner functionality:

```
use System;
use System.Gatherings.Generic;
use System.Linq;
use System.Web;
use System.Web.UI;
use System.Web.UI.WebControls;
use System.Data;
use System.Data.SqlClient;
use System.Configuration;
public partial class prisoner : System.Web.UI.Page
{
    SqlConnection cn;
    SqlCommand cmd;
    protected void Page_Load (object sender, EventArgs e)
    {
            string st4= ConfigurationManager.ConnectionStrings[″Cnstr″].ToString();
            cn = new SqlConnection(st4);
            //cn.Open();
       }
    protected void insert_Click(object sender, EventArgs e)
    {
       if (fup.HasFile)
       {
            string filepath = fup.FileName;
            string s_file = ″~/images/″ + filepath;
            fup.SaveAs(Server.MapPath(s_file));
            string str = ″insert into prisonerdetails
values(‘″ + TextBox1.Text + ″‘,’″ + TextBox2.Text + ″‘,’″ + TextBox3.Text + ″‘,’″ + TextBox4.Text + ″‘,’″ +
TextBox5.Text + ″‘,’″ + TextBox6.Text + ″‘,’″ + TextBox7.Text + ″‘,’″+ s_file +″’)″;
            cmd = new SqlCommand(str, cn);
            cn.Open();
            Response.Write(″Sucessfully Inserted″);
            cn.Close();
       }
    }
}
```

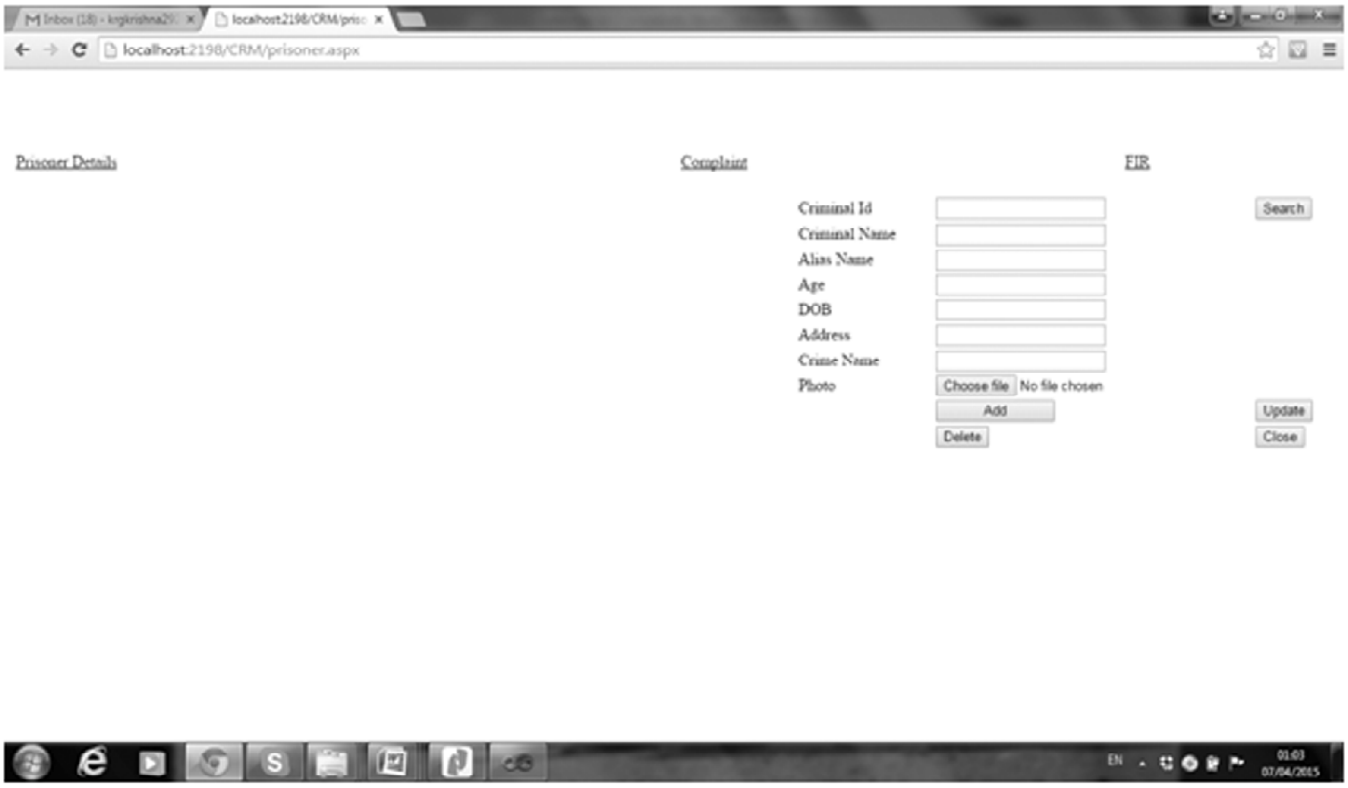

Figure 1: Prisoner module and task functionality

Here, the yellow color will shows the exact task we need to take the details of the prisoner. Name of the task is insert query using functionality in .net. Each functionality consider as the task. Each task is calculated on the bases of lines of code. If the task is to be updated then we need to increase the cost estimation. For this project there is no need of accurate resource management is not required but integrated cost ACEM is required for accurate cost estimation.

8. CONCLUSION

Our project is developed in asp.net with c# code. In this paper, we have shown how the project development according to the client requirement. Modules dividing, task dividing, lines of code etc are shown in the paper. This model is also reports the suitable reasons which are cause to inaccurate software cost estimation. In this paper we get the result about software product which is meaningful and reliable estimate. The cost of specific project depends on the complexity behind the task which is going to be developed. So it portrays the complexity of decisiveness to select a better method as each model has its unique importance. The framework gives distinctive devices to controlling the undertaking expense for example, profitability information of gear and work, and materials waste information. Such data can empower the administration to take preventive activities control the aggregate undertaking expenses. In feature, hybrid ACEM is to be developed for the heavy projects like ERP, E-Learning, E-Commerce etc.

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