**Assignment Kit #7**

**Assignment description**

Using the Project Plan Summary form shown in Table 11.2, make a plan for doing the next assignment. First, estimate the program's size as described in Chapter 6. For this program, you will have to guess the distribution of your time by phase. In the future, you should use the To Date % figures in the Project Plan Summary form for your most recent program to make this estimate. Record the estimate before doing the work and record the actual sizes and phase times when finished.

Submit a copy of any time log pages and Weekly Activity Summaries you have not previously submitted. Continue to complete and submit PSP Project Plan Summaries for all programs you write.

Read the textbook Chapters 11, and 12. There will be a quiz on this material in the next lecture. As part of this quiz, you will be asked to complete the defect portion of a Project Plan Summary.

**Comments on the assignment**

With this assignment, you start to use the PSP. This initial process provides an early foundation of data on your software process that you will find increasingly helpful as you continue developing programs.

To satisfactorily complete this assignment, you should write your next program using the process defined by the PSP script and complete the PSP Project Plan Summary form. You must also record the time you spend in each process phase in your Time Recording Log. It is important that you complete all the entries in the Project Plan Summary form and submit it together with the Time Recording Log pages that contain the time data for this program.

**Keep copies of all the forms and data you submit.**

**Table 11.1 PSP Process Script**

|  |  |  |
| --- | --- | --- |
|  | Purpose: | To guide you in developing small programs. |
|  | Entry Criteria | - The problem description  - PSP Project Plan Summary form  - Actual size and time data for previous programs  - Time Recording Log |
| 1 | Planning | - Obtain a description of the program functions.  - Estimate the Max., Min., and total LOC required.  - Determine the Minutes/LOC.  - Calculate the Max., Min., and total development times.  - Enter the plan data in the Project Plan Summary form.  - Record the planning time in the Time Recording Log. |
| 2 | Design | - Design the program.  - Record the design in the specified format.  - Record design time in the Time Recording Log. |
| 3 | Code | - Implement the design.  - Use a standard format for entering the code.  - Record coding time in the Time Recording Log. |
| 4 | Compile | - Compile the program.  - Fix all defects found.  - Record compile time in the Time Recording Log. |
| 5 | Test | - Test the program.  - Fix all defects found.  - Record testing time in the Time Recording Log. |
| 6 | Postmortem | - Complete the Project Plan Summary form with actual time and size data.  - Record postmortem time in the Time Recording Log. |
|  | Exit Criteria | - A thoroughly tested program  - A properly documented design  - A complete program listing  - A completed Project Plan Summary  - Completed time logs |

**Table 11.2 PSP Project Plan Summary**

|  |  |  |  |
| --- | --- | --- | --- |
| Student |  | Date |  |
| Program |  | Program # |  |
| Instructor |  | Language |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Summary** | | | **Plan** | | | |  | **Actual** | | |  | ***To Date*** | | |
| Minutes/LOC | | |  | | | |  |  | | |  |  | | |
| LOC/Hour | | |  | | | |  |  | | |  |  | | |
| ***Defects/KLOC*** | | |  | | | |  |  | | |  |  | | |
| ***Yield*** | | |  | | | |  |  | | |  |  | | |
| ***A/FR*** | | |  | | | |  |  | | |  |  | | |
| **Program Size (LOC):** | | |  | | | |  |  | | |  |  | | |
| Total New & Changed | | |  | | | |  |  | | |  |  | | |
| Maximum Size | | |  | | | |  |  | | |  |  | | |
| Minimum Size | | |  | | | |  |  | | |  |  | | |
| **Time in Phase (min.)** | | | **Plan** | |  | **Actual** | | |  | ***To Date*** | | |  | ***To Date %*** |
| ***Planning*** | | |  | |  |  | | |  |  | | |  |  |
| ***Design*** | | |  | |  |  | | |  |  | | |  |  |
| ***Code*** | | |  | |  |  | | |  |  | | |  |  |
| ***Code Review*** | | |  | |  |  | | |  |  | | |  |  |
| ***Compile*** | | |  | |  |  | | |  |  | | |  |  |
| ***Test*** | | |  | |  |  | | |  |  | | |  |  |
| ***Postmortem*** | | |  | |  |  | | |  |  | | |  |  |
| Total | | |  | |  |  | | |  |  | | |  |  |
| Maximum Time | | |  | |  |  | | |  |  | | |  |  |
| Minimum Time | | |  | |  |  | | |  |  | | |  |  |
| ***Defects Injected*** | ***Plan*** |  | | ***Actual*** |  | ***To Date*** | | |  | ***To Date %*** | | |  | ***Def./hour*** |
| ***Planning*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Design*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Code*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Code Review*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Compile*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Test*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Total*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Defects Removed*** | ***Plan*** |  | | ***Actual*** |  | ***To Date*** | | |  | ***To Date %*** | | |  | ***Def./hour*** |
| ***Planning*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Design*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Code*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Code Review*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Compile*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Test*** |  |  | |  |  |  | | |  |  | | |  |  |
| ***Total*** |  |  | |  |  |  | | |  |  | | |  |  |

**Table 11.3 PSP Project Plan Summary Instructions**

|  |  |
| --- | --- |
| Purpose | This form holds the estimated and actual project data in a convenient and readily retrievable form. |
| Header | Enter the following:  - your name and today's date  - the program name and number  - the instructor's name  - the language you will use to write the program |
| Minutes/LOC | Prior to development  - enter the Minutes/LOC planned for this project. ***Use the To Date rate from the most recent program in the Job Number Log or the most recent Project Plan Summary.***  After development  - Divide the total development time by the actual program size to get the actual Minutes/LOC.  - For example, if the project took 196 minutes and you produced 29 LOC, the Minutes/LOC would be 196/29 = 6.76. |
| LOC/Hour | Prior to development  - calculate the LOC per hour planned for this program by dividing 60 by the Plan Minutes/LOC.  After development  - For Actual LOC/Hour, divide 60 by the Actual Minutes/LOC.  - For Actual Minutes/LOC of 6.76, Actual LOC/Hour are 60/6.76 = 8.88. |
| Program Size (LOC) | Prior to development, enter under plan:  - the estimated Total, Maximum, and Minimum New & Changed LOC.  After Development:  - Count and enter the Actual New & Changed LOC.  - ***For To Date, add Actual New & Changed LOC to the To Date New & Changed LOC for the previous program.*** |
| Time in Phase - Plan | - For Total development time, multiply Total New & Changed LOC by Minutes/LOC.  - For Maximum time, multiply the Maximum size by Minutes/LOC.  - For Minimum time, multiply the Minimum size by Minutes/LOC.  ***- From the Project Plan Summary for the most recent program, find the To Date % values for each phase.***  ***- Using the To Date % from the previous program, calculate the plan time for each phase.*** |
| Time in Phase - Actual | - At job completion, enter the actual time in minutes spent ***in each development phase.***  - Get these data from the time log. |
| ***Time in Phase - To Date*** | ***- For each phase, enter the sum of actual time and To Date time from the most recent previous program.*** |
| ***Time in Phase - To Date %*** | ***- For each phase, enter 100 times the To Date time for that phase divided by the Total To Date time.*** |