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Assignment On

Software Metrics

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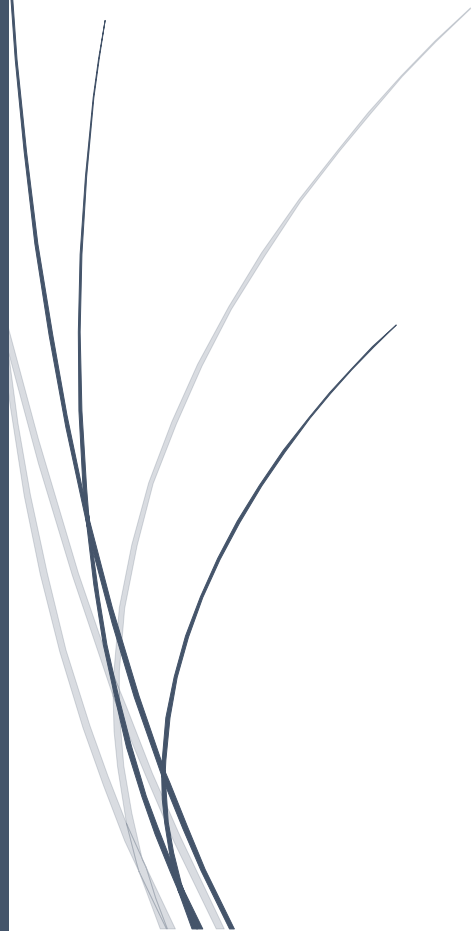

Project: Smart SPL Automation System

REQUIREMENTS ANALYSIS AND SPECIFICATION SIZE

- **Use case diagrams:**
  - **Number of use cases:** 18
  - **Number of actors:** 3
- **Use case:**
  - **Number of scenarios:** 18
  - **size of scenarios in terms of steps:** 5
- **Activity Diagram:**
  - **Number of activity diagram:** 17
  - **Activity diagram model elements:** 7

FUNCTION POINT:

To compute the number of FPs we first compute an unadjusted function point count (UFC). To do this, we determine from some representation of the software the number of "items" of the following types:

• **External inputs:** Those items provided by the user that describe distinct application-oriented data (such as file names and menu selections). These items do not include inquiries, which are counted separately.

• **External outputs:** Those items provided to the user that generate distinct application-oriented data (such as reports and messages, rather than the individual components of these).

• **External inquiries:** Interactive inputs requiring a response.

• **External files:** Machine-readable interfaces to other systems.

• **Internal files:** Logical master files in the system.

A = external input = 40

B = external outputs = 11

C = inquiries = 5

D = external files = 2

E = internal files = 1

Function Point Complexity Weights

Item	**Simple**	**Weighting Factor Average**	**Complex**
External inputs	3	4	6
External outputs	4	5	7
External inquiries	3	4	6
External files	7	10	15
Internal files	5	7	10

UFC = 40A + 11B + 5C + 3D + 1E

= (12x3+18x4+10x6) + (5x4+4x5+2x7) + (2x3+3x4) + (2x7+1x10) + (1x7)

= 168 + 54 + 18 + 24 + 7

= 271

Components of the Technical Complexity Factor

F1 Reliable backup and recovery	F2 Data communications
F3 Distributed functions	F4 Performance
F5 Heavily used configuration	F6 Online data entry
F7 Operational ease	F8 Online update
F9 Complex interface	F10 Complex processing
F11 Reusability	F12 Installation ease
F13 Multiple sites	F14 Facilitate change

F3, F5, F9, F11, F12, and F13 are 0, that F1, F2, F6, F7, F8, and F14 are 5, and that F4 and F10 are 7.

Thus, we calculate the TCF as

$$\textbf{TCF} = 0.65 + 0.01(30 + 14) = 1.09$$

Since UFC is 271, then

$$\textbf{FP} = 271 \times 1.09 = 295$$