HW5

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1. This project is an automatic light and temperature control system in an automated farm. By monitoring light intensity, humidity and temperature, the equipment is automatically adjusted to simulate the best growing conditions for the crops. The database monitors the numbers from sensors and has all records for this control system. Users can confidently control lighting and temperature manually through the cloud and get warning notations.

图示

描述已自动生成

1. According to “Calculation of Function Point (FP)” from geeksforgeeks,[1]
2. F = 14 \* scale (for this project, scale = 3) = 0.42

CAF = 0.65 + (0.01 \* F) = 1.07

For EI, FTRs is 2, the DETs is 3, so EI is Low. EI = 3

For EO, FTR is 2, DETs is 3, so EO is Low. EO = 3

For EQ, FTR is 1, DETs is 1, so EQ is Low. EQ = 1

For ILF, RETs is 2, DETs is 5, so ILF is Low. ILF = 3

For EIF, RETs is 1, DETs is 1, so EIF is Low. EIF = 2

UFP = 3 \* 3 + 3 \* 4 + 1 \* 3 + 3 \* 7 + 2 \* 5 = 56

(FP = UFP \* CAF = 56 \* 1.07 = 59.92)

1. Effort using COCOMO (function points), which is 9.7 person-months. The length is 7.6 months.
2. For java, SLOC/UFP = 53, UFP = 56, so SLOC = 56 \* 53 = 2,968
3. Effort using Jones table, when CMM level 1, the function points per staff month is 3. So, it will be 56/3 = 18.6667 person-month.
4. For this requirement, I will choose visual C++ to rewrite this project. Because the Gearing Factors of visual C++ is about 25% lower than Java.

[1] https://www.geeksforgeeks.org/software-engineering-calculation-of-function-point-fp/