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**Cost Estimation**

Applying the COCOMO model to estimate project parameters for various other topics and projects. The COCOMO model is a widely used software estimation technique that can be adapted to different software development projects.

Here's an example for estimating a project related to **"Skin Disease Detection using CNN" at three different complexity levels:**

1. **Low Complexity Skin Disease Detection Using CNN Project:**

* Project Overview: Developing a basic skin disease detection system using Convolutional Neural Networks (CNN) with a limited number of skin disease classes.
* Project Size Estimation: Estimated at 500 Function Points (FP).
* COCOMO Model Selection: Intermediate COCOMO.
* Assuming a cost rate of $12,000 per person-month.

Step 1: Calculate Effort (E)

* E = 2.8 \* (500)^1.2
* E ≈ 1649.49 Person-Months

Step 2: Calculate Duration (D)

* D = 3.0 \* (1649.49)^1.2
* D ≈ 3661.87 Months (or approximately 305.16 Years)

Step 3: Calculate Cost (C)

* C = 1649.49 Person-Months \* $12,000/Person-Month
* C ≈ $19,793,880

Step 4: Calculate Function Points per Person-Month

* FP per Person-Month = Function Points / Effort (in person-months)
* FP per Person-Month = 500 FP / 1649.49 Person-Months
* FP per Person-Month ≈ 0.303 FP/Person-Month

1. **Medium Complexity Skin Disease Detection Using CNN Project:**

* Project Overview: Developing a comprehensive skin disease detection system using CNN with more skin disease classes and potentially more advanced features.
* Project Size Estimation: Estimated at 1000 Function Points (FP).
* COCOMO Model Selection: Intermediate COCOMO.
* Assuming a cost rate of $12,000 per person-month.

Step 1: Calculate Effort (E)

* E = 2.8 \* (1000)^1.2
* E ≈ 3298.98 Person-Months

Step 2: Calculate Duration (D)

* D = 3.0 \* (3298.98)^1.2
* D ≈ 7318.35 Months (or approximately 609.86 Years)

Step 3: Calculate Cost (C)

* C = 3298.98 Person-Months \* $12,000/Person-Month
* C ≈ $39,587,760

Step 4: Calculate Function Points per Person-Month

* FP per Person-Month = Function Points / Effort (in person-months)
* FP per Person-Month = 1000 FP / 3298.98 Person-Months
* FP per Person-Month ≈ 0.303 FP/Person-Month

1. **High Complexity Skin Disease Detection Using CNN Project:**

* Project Overview: Developing a highly advanced skin disease detection system using CNN with a large number of skin disease classes, real-time image processing, and potential integration with medical records.
* Project Size Estimation: Estimated at 2000 Function Points (FP).
* COCOMO Model Selection: Intermediate COCOMO.
* Assuming a cost rate of $12,000 per person-month.

Step 1: Calculate Effort (E)

* E = 2.8 \* (2000)^1.2
* E ≈ 6597.96 Person-Months

Step 2: Calculate Duration (D)

* D = 3.0 \* (6597.96)^1.2
* D ≈ 14636.69 Months (or approximately 1219.72 Years)

Step 3: Calculate Cost (C)

* C = 6597.96 Person-Months \* $12,000/Person-Month
* C ≈ $79,175,520

Step 4: Calculate Function Points per Person-Month

* FP per Person-Month = Function Points / Effort (in person-months)
* FP per Person-Month = 2000 FP / 6597.96 Person-Months
* FP per Person-Month ≈ 0.303 FP/Person-Month

These calculations provide estimations for the "Skin Disease Detection Using CNN" project at three different complexity levels, similar to the example for e-commerce website development. Please note that these are rough estimates and may not accurately reflect the actual costs and timeline of such a project, as the COCOMO model is primarily designed for software development.