iPad Restaurant Application

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Team Shadow Dogs UNleashed

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COCOMO

To calculate estimated effort, we can use the COCOMO formula:

```
E = a(KLOC)^b
```

Given our app is a restaurant menu, it is technology that is well-trodden and previously created. In this case, our program will be ‘organic’, and our constants are A = 2.4 and B = 1.05.
To estimate KLOC, we can use Fuzzy-Logic Estimation. The following chart contains rough statistics.

Range	Nominal KLOC	KLOC range included
Very small	2	1-4
Small	8	4-16
Medium	32	16-64
Large	128	64-256
Very large	512	256-1028

Based on historical data of restaurant menus, we can confidently say that our program will be larger than the ‘Very small’ size and will be smaller than the “Medium” size. In that case, we can pick a value within the ‘Small’ size range. To simplify the calculation, we can take a value of 10.
Therefore:

```
E = 2.4(10)^1.05 = 28 person months.
```

Next, to calculate total duration, we need to use another COCOMO formula:

```
D = c(EFFORT)^d
```

Again, we will consider our program as ‘organic’ and this time, our constants will be c = 2.5 and d=0.38
Therefore:

```
D = 2.5(28)^0.38 = 8.9 months =~ 9 months
```

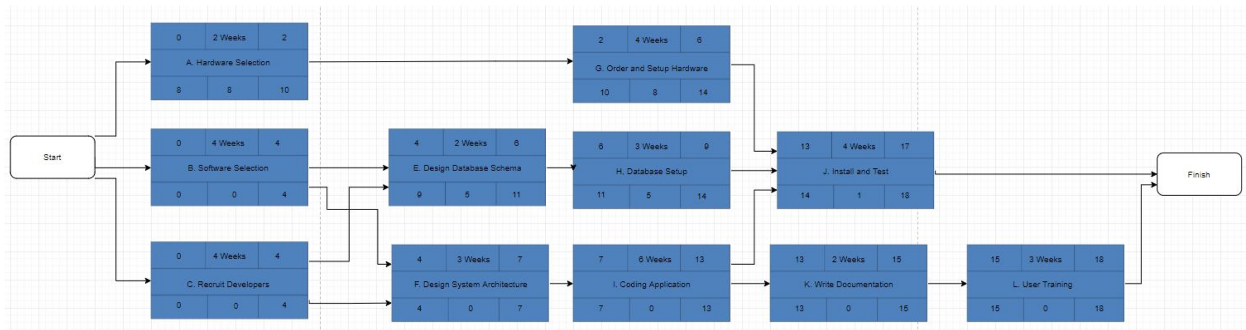
Finally, we can also estimate staffing by using:

```
STAFFING = EFFORT/DURATION
```

Therefore:

```
STAFFING = 28/9 =~ 3 persons
```

Activity Diagram



Risks

There are a few risks associated with this project. These risks include things like “team member incompetency”, “unexpected recovery costs”, “lack of significant change in customer retention”, and “development cost unable to justify project”. These risks will be explained in further detail below.

Team member incompetency refers to a recruitment process that results in a team not well suited for the project requirements. This could be due to a variety of reasons such as inexperience, subpar team cohesion, or even just an inability for the recruit to complete the project as intended. These risks can be mitigated by using a rigorous recruitment process that makes sure to focus on the causes listed above, such as making sure that the recruits have previous experience developing similar applications, and conducting behavioral interviews to determine if the person would be a good fit. These additions should help mitigate any significant cost occurring from this risk.

Unexpected recovery costs refer to costs accrued due to the mismanagement of equipment. Due to the fact that the software will be run on tablets, which are significantly more expensive than paper, it is imperative that we minimize costs associated with equipment mismanagement. This can be done by buying protective gear for the tablets, which will increase startup costs but reduce long term maintenance costs. Furthermore, more time can be spent training the staff on good practices around handling their devices while serving customers. These measures should reduce unexpected recovery costs significantly.

Lack of significant change in customer retention refers to the project failing on a commercial basis. If the development of the project is a success, but the store does not see any increase in customer attendance or retention, then the project can still be considered a failure. This risk can only be mitigated by analyzing the market and the stores customer base to figure out what customers really want. To this end, it is recommended that we conduct surveys among our customers to see the features they would like to have added and which features they believe would help increase their attendance, or make them refer this store to a friend.

Development costs unable to justify project costs refers to the fact that the profit gained in the short-term might not necessarily be that useful when compared to the development cost. Could the money spent on developing the application have gone elsewhere? Are there hidden opportunity costs? How long is it expected to take for the project to completely return its investment and make a profit? The risk of this being the case can be reduced by analyzing other alternatives for the projects budget and also determining overall the cost for the project. If the project costs cannot be returned on in a certain number of years, then the project can be considered unviable and a different use of the budget should be considered.