Software Project Management
Lab 3

Topic: iPad Restaurant Application

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Project Recap

With the widespread use of technology is rapidly applied across various industries, the restaurant industry has been a quick and early adopter to the use of mobile technology to boost efficiency in various businesses. A prime example of this is the touch screen tablet devices, such as the iPad, that can be seen being implemented in many all-you-can-eat restaurants, where orders are frequent, and the number of servers is limited. The automated system ultimately provides comfort to the customers while allowing organizations in the business.

Studies have even shown that 76% of modern consumers prefer to use self-service channels, due to the convenience and efficiency associated (CRM, 2018).

The following are assumptions made for the project:

- We are a startup specializing in full-stack, application integration for the restaurant industry using easy-to-use iPad hardware.

Source: https://www.imore.com/ipads-set-replace-restaurant-menus-staff

COCOMO Model

The product deliverable is relatively simple and requires a small team size, therefore the project was estimated using the 'organic' system as per Boehm's definitions of systems.

Cost Drivers	Very Low	Low	Nominal	High	Very High	Rating	Weighted Rating
Product Attributes							
Required Software Reliability	0.75	0.88	1.00	1.15	1.40	3	3.45
Size of Application Database		0.94	1.00	1.08	1.16	2	1.88
Complexity of The Product	0.70	0.85	1.00	1.15	1.30	1	1
Hardware Attributes							
Runtime Performance Constraints			1.00	1.11	1.30	3	3
Memory Constraints			1.00	1.06	1.21	1	1
Volatility of the virtual machine environment		0.87	1.00	1.15	1.30	2	1.74
Required turnabout time		0.94	1.00	1.07	1.15	3	3.21
Personnel attributes							
Analyst capability	1.46	1.19	1.00	0.86	0.71	2	2
Applications experience	1.29	1.13	1.00	0.91	0.82	3	3
Software engineer capability	1.42	1.17	1.00	0.86	0.70	3	3
Virtual machine experience	1.21	1.10	1.00	0.90		2	2
Programming language experience	1.14	1.07	1.00	0.95		3	2.85
Project Attributes							
Application of software engineering methods	1.24	1.10	1.00	0.91	0.82	2	2.2
Use of software tools	1.24	1.10	1.00	0.91	0.83	3	2.49
Required development schedule	1.23	1.08	1.00	1.04	1.10	3	3

EAF = 35.82

Software Projects	A	B
Organic	3.2	1.05
Semi-Detached	3.0	1.12
Embedded	2.8	1.20

Range of KLOC based on Organic Software Projects

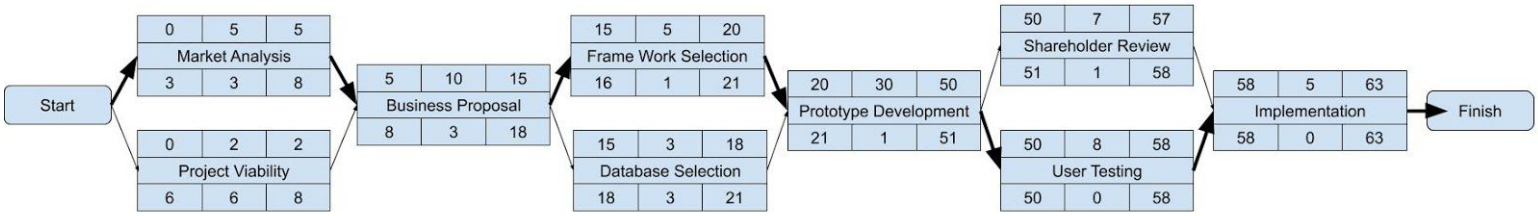
2-50 KLOC, small, stable, little innovation[1]

Based on this range estimate as well as personal coding experience, we estimate an application for this use-case will approximately contain 5000 lines of functional code.

$$E = (a(KLOC)^b) \times EAF$$

$$E = (3.2(5\ \text{KLOC})^{1.05}) \times 35.82$$

$$E = 621.146\ \text{person-months}$$



Critical path

Units are in business days**

Risks Associated with the Project

- Development
  - Unforeseen bugs
  - Shareholder modifying requirements during development
  - Health concerns (ie. Coronavirus outbreak) causing halt of production
- Deployment
  - Business infrastructure changes that do not interface with created software
  - Shareholder dissatisfaction
  - Updates in hardware technology that render software/existing hardware unfavorable to use (ie. Apple slowing down older device performance)

[1] Slide 5 - https://cs.uwaterloo.ca/~apidduck/se362/Lectures/cocomo.pdf