

## PM WORLD TODAY – FEATURED PAPER – JANUARY 2010

## Mockup Based Development

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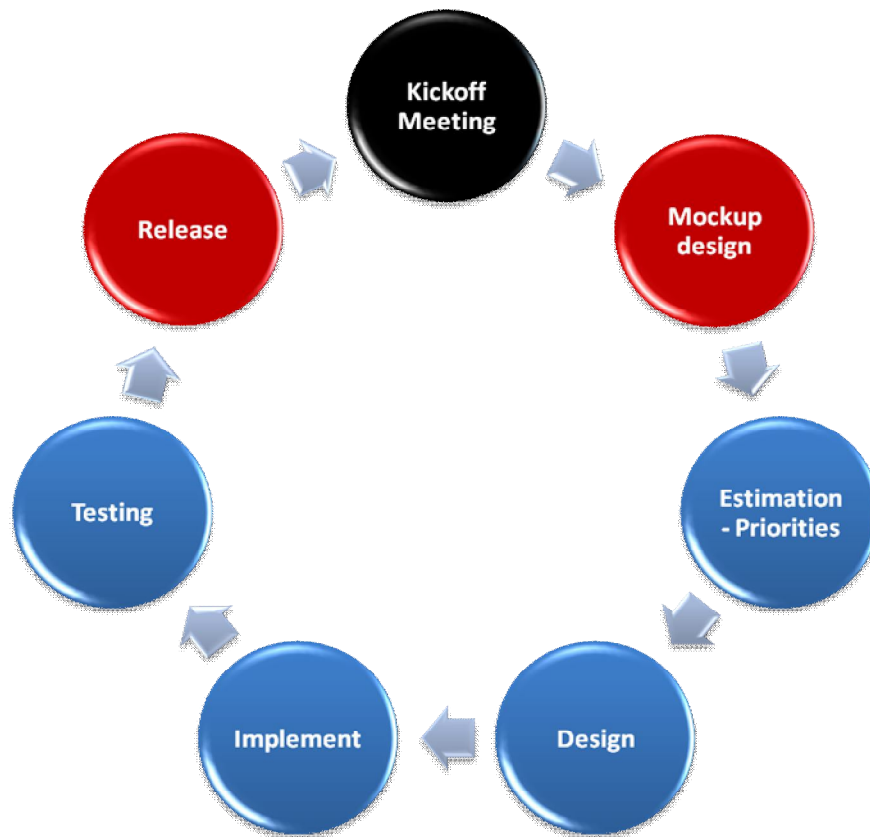
Agile denotes nimbleness, a light-weight systems development methodology, based on iterative development where solutions evolve from tightly collaborated cross-functional teams. Agile process relies on Individuals and interactions over process and tools, Working software over comprehensive documentation, Customer collaboration over contract negotiation, and Respond to change over following a plan. In this paper I am going to present a new methodology, Mockup based Methodology(MBD), which depicts development of software solutions using mockups.

Mockup based methodology relies on Agile manifesto for its underlining concepts. MBD is an iterative approach where a mockup for the entire application is developed upfront by mockup team, which includes project sponsors, UI designers, Team Leads and other key players. After the initial version of mockups are delivered, subsequent design, development and testing takes place.

This iterative approach yields a prototype in first few weeks there by reducing the issue of 'This is not what I expect'.

### **Life Cycle of MBD**

Mockup based development can be developed in seven stages: Kickoff meeting, Mockup designs, High level design, Detail designs, Development, Testing and Release. This is illustrated in figure 1.



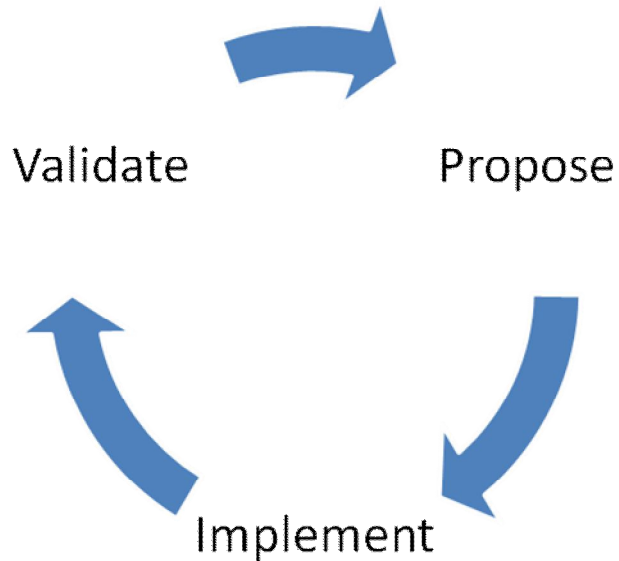
**Figure 1: Life Cycle of MBD**

## **STEP 1: Kickoff Meeting**

All necessary key players are identified in this phase. An initial team which includes project sponsor, UI designers, Team leads, Senior programmers and Architects. This team aims in materialize the illusionary business requirement into presentable mockups. Kickoff meeting aims at knowledge transfer from business owners to all necessary key players. This facilitates a clear understanding about requirements.

## **STEP 2: Mockup design**

This phase aims at materialize the illusionary business requirement into presentable mockups. This phase results in high level mockups for the given development life cycle called Sprint. This mockups depicts all necessary functionality of the application. This phase generally last for 1-2 weeks. This phase results in a prototype very much early in the game, thereby reducing the problem of 'This is not what I expect'. Early delivery also reduces the refactoring cost. As business requirements are crude, Mockups are developed in iterative and adaptive fashion. This is illustrated in figure 2.



**Figure 2: Adaptive and Iterative development**

### **STEP 3: High Level Estimation -Prioritization**

Once mockups are finalized, tier-2 development team needs to work on high level design. High level design can include user stories for each mockup, index cards for each user stories. Often user stories are compared with requirement documents, unlike requirement documents user stories outlines high level statements. User stories avoid technical specifications, user interface layouts and any other micro details. User stories are generally written by either business owners or customers.

- **Student registers for courses**
- **Student can drop any course**
- **Student can leave a note to advisor**
- **Student can purchase parking ticket**
- **Student can pay the their fees**

**Figure 3: User stories for Mockup 1[Student Account administration]**

For each user stories, a high level estimation can be performed. User stories are generally written on index cards. Index cards include high level of descriptions about user stories, priority of the story, estimates, and any other details. Prioritization can generally be of High/Medium/Low or number index.

Mockup No: 1	User Story No:1
<p>Student can register for a course.</p>	
<p><b>Priority:</b> Medium <b>Estimated hours:</b> 24</p>	

**Figure 4: Index cards for User story 1 and Mockup 1[Student Account administration]**

Once user stories and corresponding index cards are developed, it is up to tier-1 team to prioritize the tasks based on technical availabilities. This stage results in a complete set of user stories which are targeted for current sprint cycle.

### STEP 4: Design

Though design is time consuming, a better design always yields a better product. A better design yields a reliable, robust and maintainable system. Coupling and cohesion has to be considered during a high level design. A sample design of a J2EE application is illustrated below.

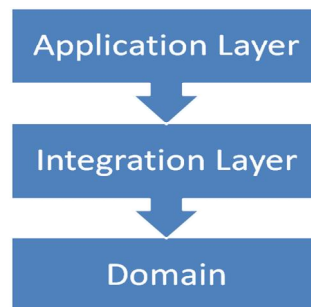


Figure 5: Sample J2EE Design

## STEP 5: Development

Once high level design is completed, development team plays a vital role in building the solution. Testing needs to be part of the development team in order to find the bugs at a very early stage. Unit test find issues early in the development cycle. Unit testing provides a sort of living documentation of the system.

Some of the utilities like HttpUnit is very helpful in validating the functionality across different mockups. A sample mockup team hierarchy is illustrated in Figure 6.

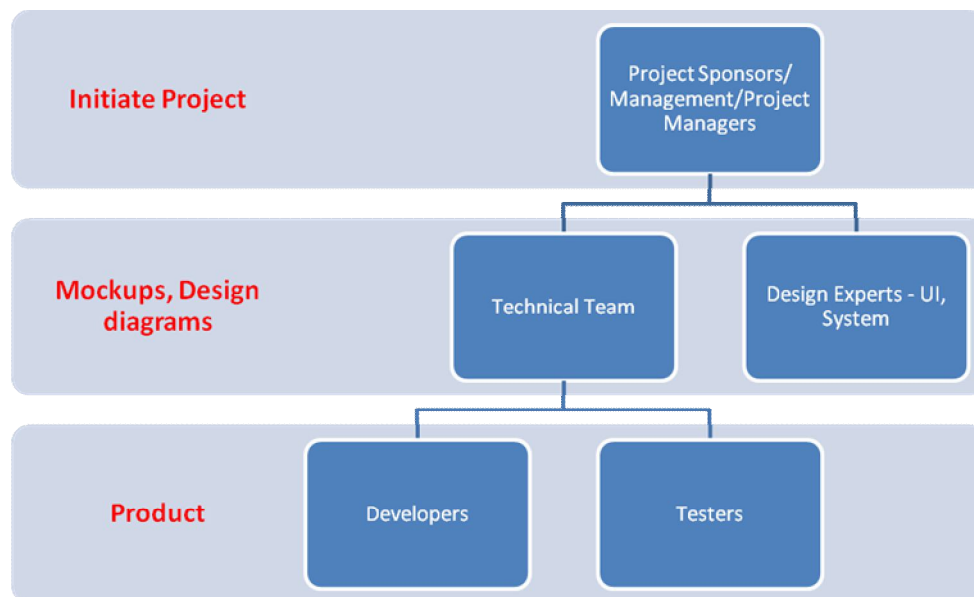


Figure 6: Team Hierarchy and deliverables

## STEP 6: Testing

In this phase testers perform integration and functional testing. This phase results in a quality guaranteed product, which is ready to be released. Automated regression testing tools will be helpful in performing periodic regression.

## Conclusion

Mockup based development is very effective for small-medium web based applications. This approach yields a quicker prototype and reduces the refactoring cost.

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