



ARTIFICIAL INTELLIGENCE SOFTWARE DEVELOPMENT

Week 3 Lecture 2
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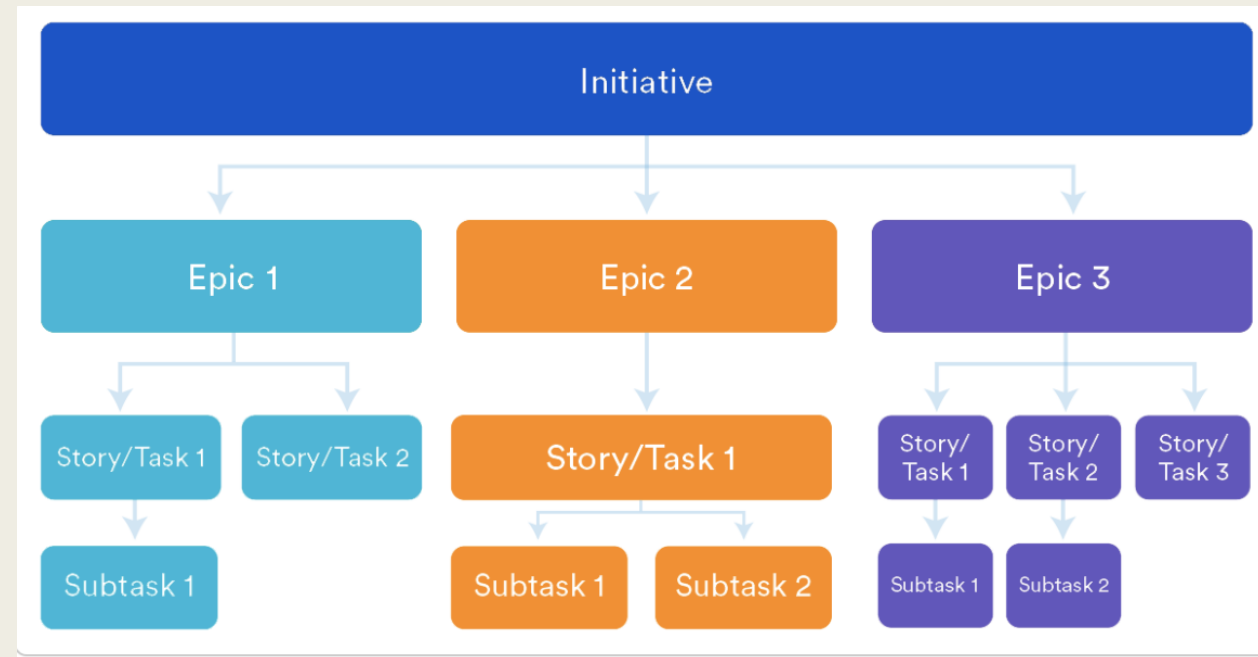




USER STORIES IN AGILE SOFTWARE DEVELOPMENT

Image Source
<https://myleanexperience.blog/2018/05/30/utilisation-de-la-user-story-pourquoi-et-comment/>

Hierarchical Structure of Agile Project Management



Reference:

<https://www.atlassian.com/agile/project-management/>

Initiatives

- Initiatives are bigger and broader goals that a company wants to achieve
- Happens over many quarters and through multiple product releases
- Involves multiple geographically distributed teams
- Examples of Initiatives:
 - A space recreational travel company wants to reduce cost per trip by 10%
 - Reduce fuel consumption during rocket launch by 20%
 - Make more trips in a year
 - Accommodate more passengers in a trip
- An initiative would involve multiple Epics

Epics

- **Epics** are large body of work that can be completed over several **Sprints**
- Epics are usually broken down to **User Stories**
- As the epic progresses more User Stories can be added or deleted
- Epic: March 2050 Launch
 - Stories for the Software Development Team
 - Update date range to include March 2050 Launch dates.
 - Reduce load time for requested flight listings to < 0.45 seconds
 - Promote Summer Sale on confirm page for First Class bookings.
 - Stories for the Propulsion Team
 - Keep fuel tanks PSI > 250 PPM on launch
 - Reduce overall fuel consumption by 1%.
 - Hire new propulsion engineer.

User Stories

- A user story is a general explanation of a software feature written **from the perspective of the end user**.
- Non-Technical in Nature.
- Purpose is to articulate how a software feature will provide value to the customer.
- User stories are **not Software System Requirements**.
- They are one of the core components of an agile program.
- User stories are added to Sprints

Advantage of User Stories

- Stories keep **focus on the user**
- Understood equally well by **everyone**
- Useful for **iterative planning and development**
- Encourage **deferring of details** to when needed
- Support **opportunistic design**
- Emphasize verbal **communication**
- Stories creates **momentum**



How to Write User Stories

- Listen to Customer and capture the problem in their words
- Write a story for each Step to solve the problem
- Include a definition of Done for each story
- Template Role-Activity-Business Value
- Examples:
 - As a user closing the application, I want to be prompted to save anything that has changed since the last save so that I can preserve useful work.
 - As a manager, I want to be able to understand my colleagues progress, so I can better report our sucess and failures.
 - As a non-administrative user, I want to search for my customers by their first and last names so that I can view their profiles quickly

The 3 C's of User Stories

Card: is the short 2-3 sentence description of the specific User Story. The card must address the *who* (a specific user role), *what* (the desired task or action), and *why* (the benefit of completing this task or action).

Conversation: The Conversation represents a promised discussion between all stakeholders – including the end user, production and development teams, and the Product Owner.

Confirmation: The Confirmation is an acceptance test in which the Product Owner confirms that the User Story has been satisfied based on a predetermined definition of “done”.

Estimation

- Estimation is a team-work which requires inputs from different team members.
- Estimation is done as number of **story points**.
- **Story points** are units of measure for expressing an estimate of the overall effort required to fully implement a product backlog item.
- Story points are assigned relative to work complexity, the amount of work, and risk or uncertainty.
- Usually 8 hours (single day) is taken as 10 story points.
- No single work item should take more than 20 story points.

Estimation-Fibonacci Scale

- Fibonacci Sequence - 0, 1,1, 2, 3, 5, 8, 13, 21, 34, 55, and 89.
- How to generate Fibonacci Sequence?
- Use Fibonacci scale to prioritize tasks to be included in the next sprint.
 - *complex tasks are assigned more story points*
 - *smaller tasks are assigned fewer*
- Why Fibonacci Sequence?
 - Is a non-linear sequence
 - Effort would be a non-linear function of complexity

How Estimation is done in Practice?

- Each team member estimates a number on the Fibonacci scale that represents the task's size
- All team members disclose their numbers at the same time to avoid being influenced by each other's estimates
- Together, they conduct a review of the disclosed numbers until they reach a consensus about each task and user story
- Each user story is then added to a bucket which represents a corresponding point in the Fibonacci sequence

Example – Flight Management System

Goal: Build an online system to manage flights and passengers to ease the flight management.

Value Proposition: Ease flight management and to create a convenient and easy-to-use application for passengers, trying to buy airline tickets.

System Description:

- The system is based on a relational database with its flight management and reservation functions.
- Database server supporting hundreds of major cities around the world as well as thousands of flights by various airline companies.
- Database stores:
 - Flight details
 - Customer description
 - Reservation description

Example – Flight Management System

Main Functionalities:

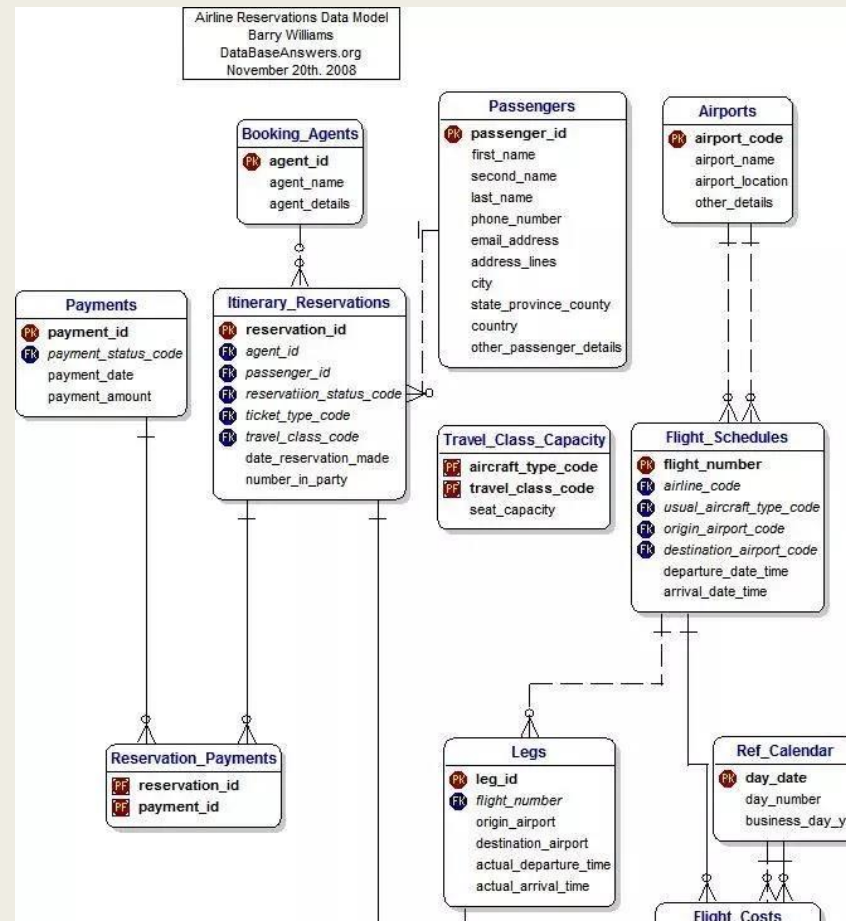
- Make a new reservation
 - One-way
 - Round-Trip
 - Multi-city
 - Flexible Date/time
 - Confirmation
- Cancel an existing reservation
- View itinerary of a user

Example – Flight Management System

■ CUSTOMER FUNCTIONS

- Get all customers who have seats reserved on a given flight.
 - Get all flights for a given airport.
 - View flight schedule.
 - Get all flights whose arrival and departure times are on time/delayed.
 - Calculate total sales for a given flight.
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Example – Flight Management System



Example – Flight Management System

Task:

Write down Epic and User stories for building a Database for the flight management system.

More details about the requirements can be found here:

<https://krazytech.com/projects/sample-software-requirements-specificationsrs-report-airline-database>

Client Meeting

- Introduce the team, each person's background and work experience
- Get an in-depth understanding of the end goal (what is that the client expecting at the end of the project from the team, and in what format, acceptance criteria)
- Data
 - What data is required
 - Is data available already
 - More data needs to be generated ?
 - If data needs to be cleaned, processed
 - What options are there if data is not available

Client Meeting

- Software stack
 - Which cloud/git/project management system to use
 - What should be the format of the final prototype
 - API Keys for LLM use
- Generate milestones
- Your availability (term breaks, exams)