Features, Scenarios and Stories

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Based on Ian Sommerville

Overview

- Importance of features in product design
- How to make list of features by making personas, scenarios.
- In class group exercise!

Key component in product designs

Business needs that are not met by current product

Dissatisfaction with existing product

Changes in technologies

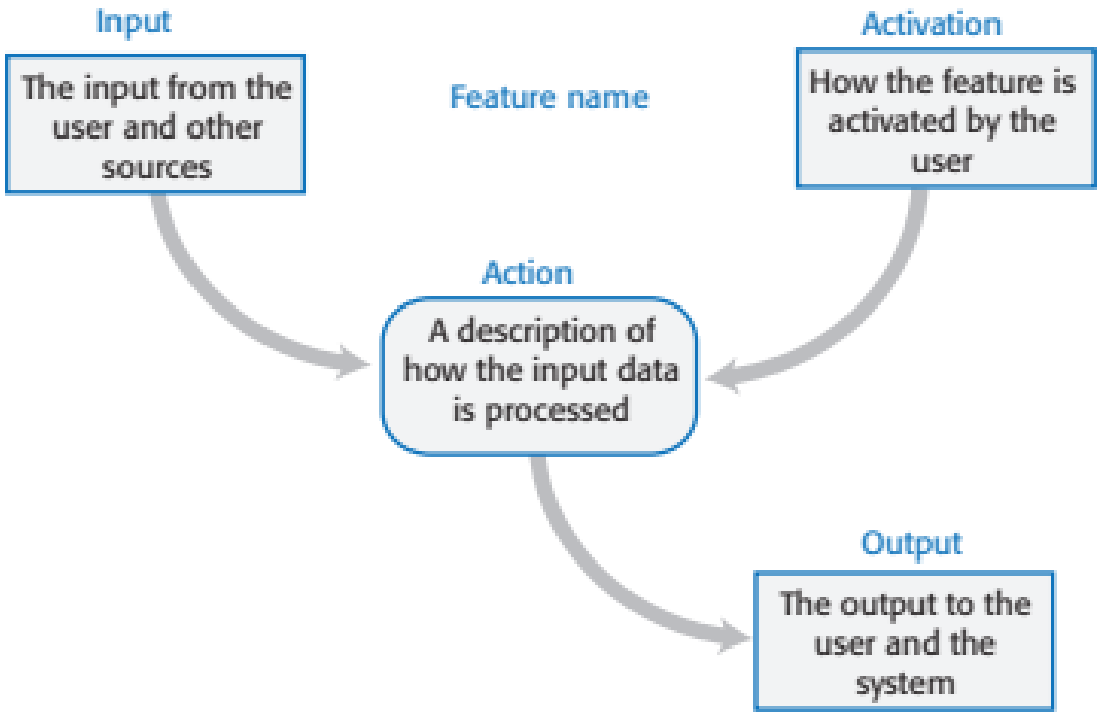
Software Features

- Fragments of functionality:
  - Print, change background, sing out
- Before anything, we need to create a list of features
- Feature list should be starting point of product design.

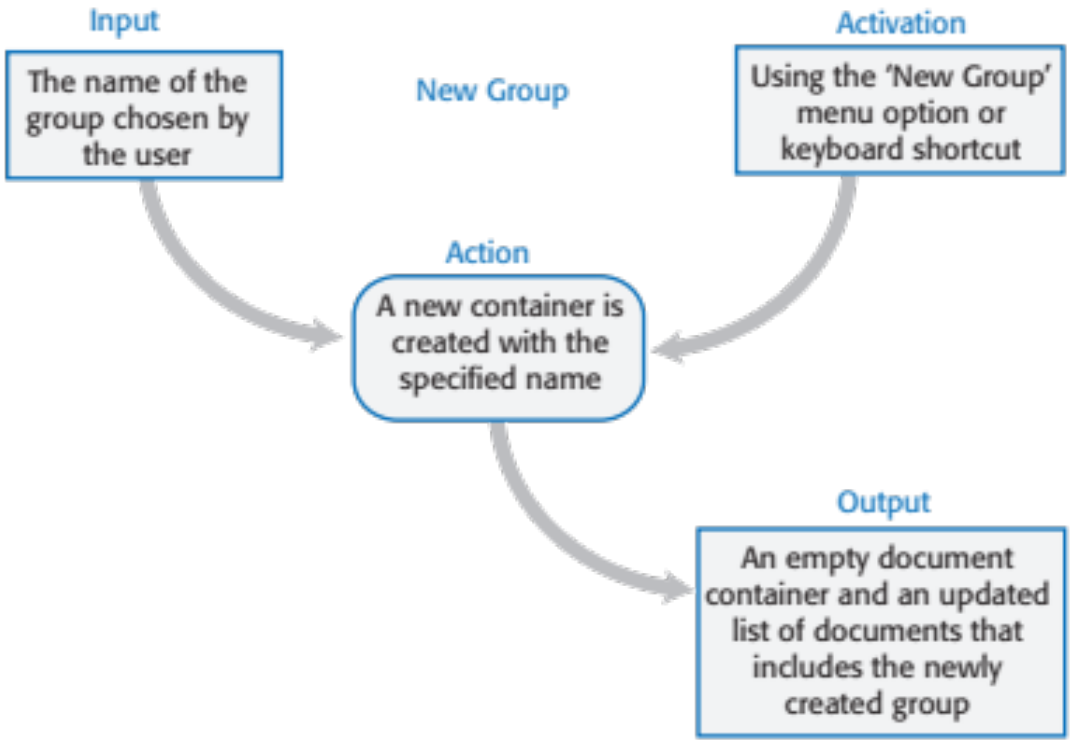
How to build feature list?

- User and customer understanding
  - User interviews, surveys, task analysis
  - Early and cheap release of our MVP
    - Informal user analysis and discussion

Feature Description



Feature Description Example



One way of representing users: Personas

- One way of understanding potential users
- Imagined user
- For example, all personas for a dentist appointment management system are: Dentists, receptionist and patients

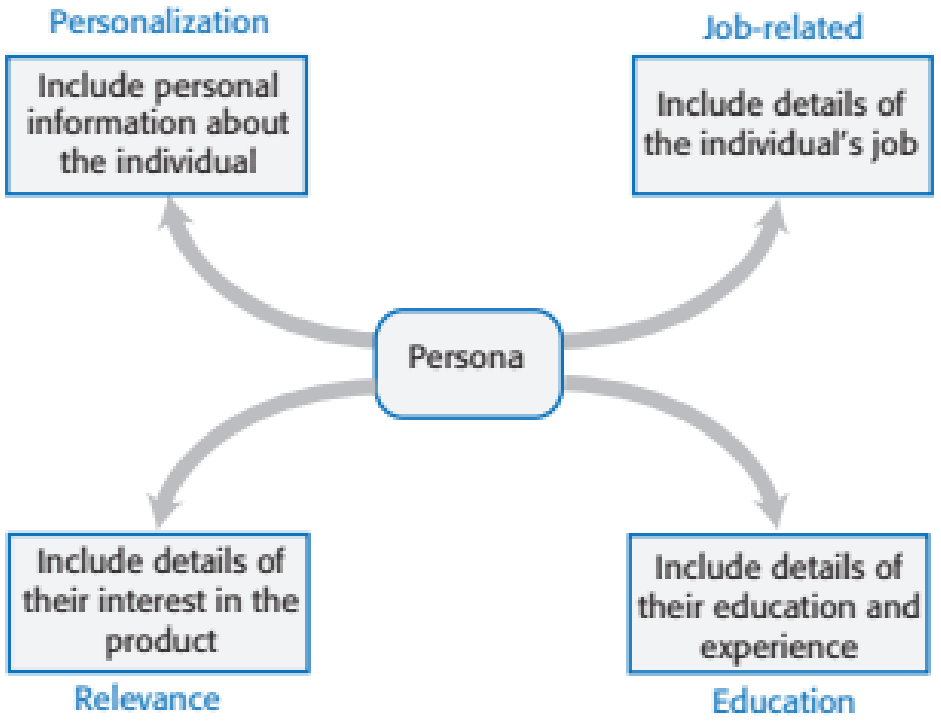
Persona descriptions

- Paint a picture; short and easy to read
- Describe user background and product usage
- Educational background and technical skills

Driving persona

- Based on an understanding of potential product users, their jobs, background, etc.
- Survey the potential users
- Abstract the essential information about the different types of product users
- Sometimes there is limited user information, and we must come up with **proto personas**

Persona Descriptions



Personal Example

- ***Elena, a school IT technician***
  Elena, age 28, is a senior IT technician in a large secondary school (high school) in Glasgow with over 2000 students. She has a diploma in electronics from Potsdam University. She hopes to develop her career in Scotland. She was originally appointed as a junior technician but was promoted, in 2014, to a senior post responsible for all the school computers.

- Although not involved directly in teaching, Elena is often called on to help in computer science classes. She is a competent Python programmer and is a ‘power user’ of digital technologies. She has a long-term career goal of becoming a technical expert in digital learning technologies and being involved in their development. She wants to become an expert in the iLearn system and sees it as an experimental platform for supporting new uses for digital learning.

Benefits of Persona

- Help developers
  - Empathize with potential users
  - Step into users’ shoes
- Make sure that developers aren’t working on useless features
- Avoid unwarranted assumptions

Scenarios

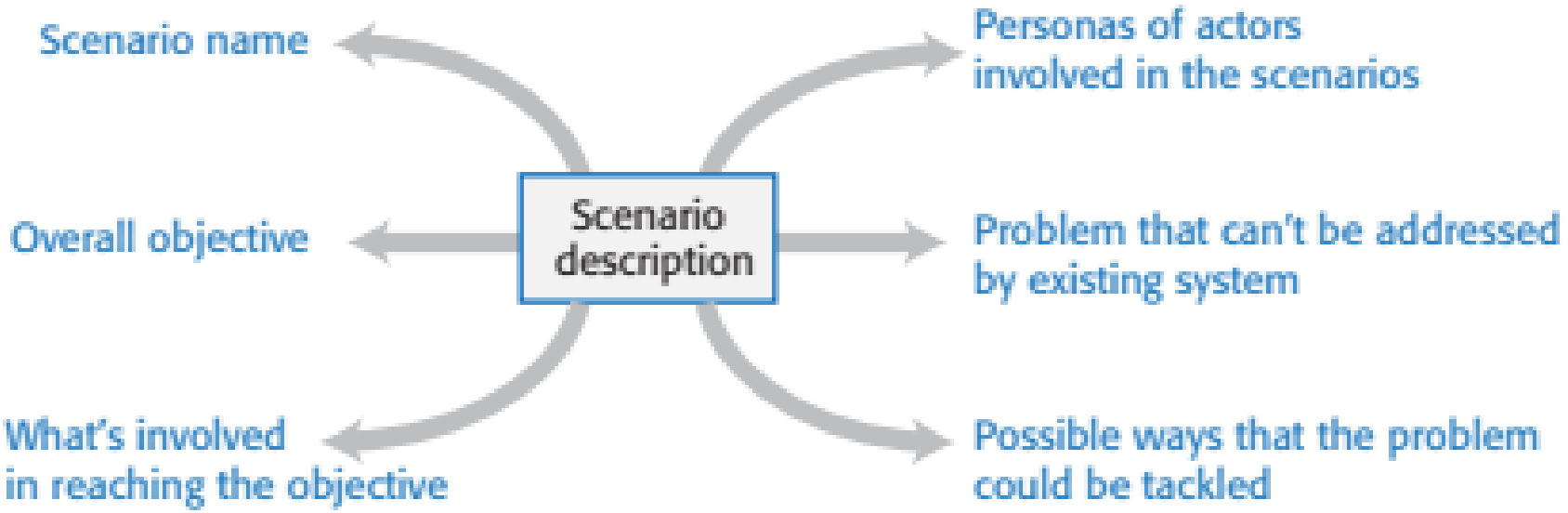
- A scenario is a narrative that describes how a user, or a group of users, might use your system.
- There is no need to include everything in a scenario – the scenario isn’t a system specification.
- It is simply a description of a situation where a user is using your product’s features to do something that they want to do.
- Scenario descriptions may vary in length from two to three paragraphs up to a page of text.

Using ilearn: Learning management system for class project

- ***Fishing in Ullapool***
  Jack is a primary school teacher in Ullapool. He has decided that a class project should be focused around the fishing industry in the area
- As part of this, students are asked to collect old photographs related to fishing and fishing communities in the area. They use an iLearn wiki to gather together fishing stories and SCRAN (a history archive site) to access newspaper archives and photographs. However, Jack also needs a photo-sharing site as he wants students to take and comment on each others' photos and to upload scans of old photographs that they may have in their families. He needs to be able to moderate posts with photos before they are shared, because pre-teen children can't understand copyright and privacy issues.

- Jack sends an email to a primary school teachers' group to see if anyone can recommend an appropriate system. Two teachers reply and both suggest that he uses KidsTakePics, a photo-sharing site that allows teachers to check and moderate content. As KidsTakePics is not integrated with the iLearn authentication service, he sets up a teacher and a class account with KidsTakePics.
- He uses the the iLearn setup service to add KidsTakePics to the services seen by the students in his class so that, when they log in, they can immediately use the system to upload photos from their phones and class computers.

Elements of Scenario description



Writing Scenarios

- User centric
- Avoid Technical Details
- Comprehensive coverage

User involvement strategies and challenges

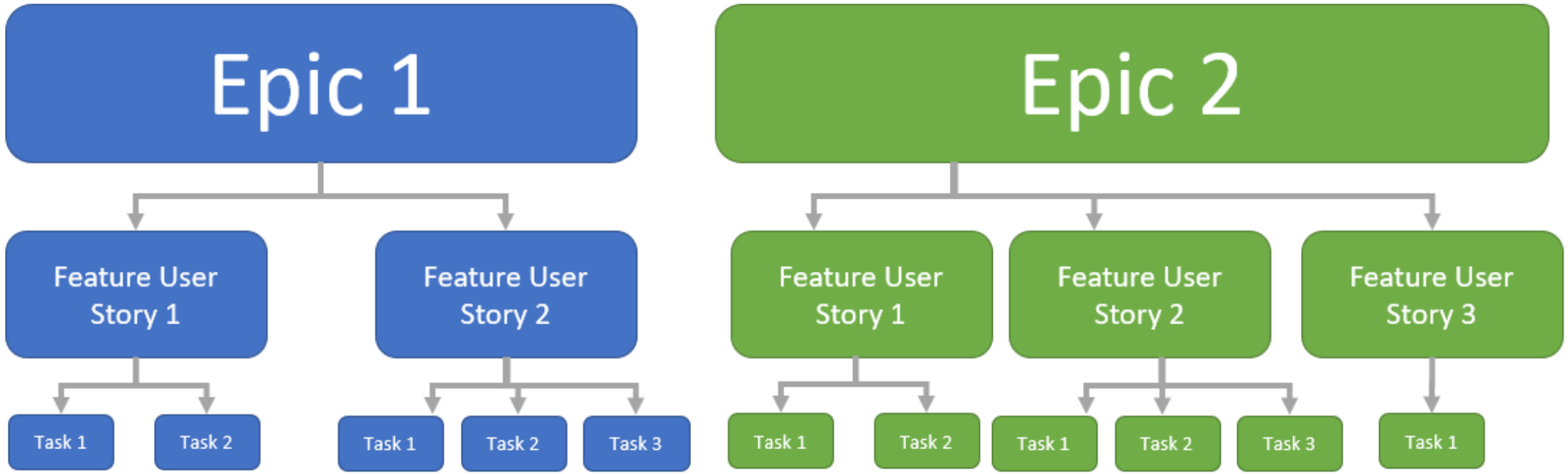
- Strategies
  - Initial Scenario Creation
  - User Feedback and Iteration
  - Refinement and Expansion
- Challenges:
  - User generated content: too detailed. No abstraction.
    - How to mitigate this?
      - Guidance and facilitation

User Stories

- **Definition**: User stories are more specific than scenarios.
- **Content**: Each user story focuses on a single functionality or need,
- **Standard Format of a User Story**:
  - As a [role], I [want | need] to [do something].
- **Extended Format with Justification:**
  - As a [role], I [want | need] to [do something] so that [reason].

User stories in planning

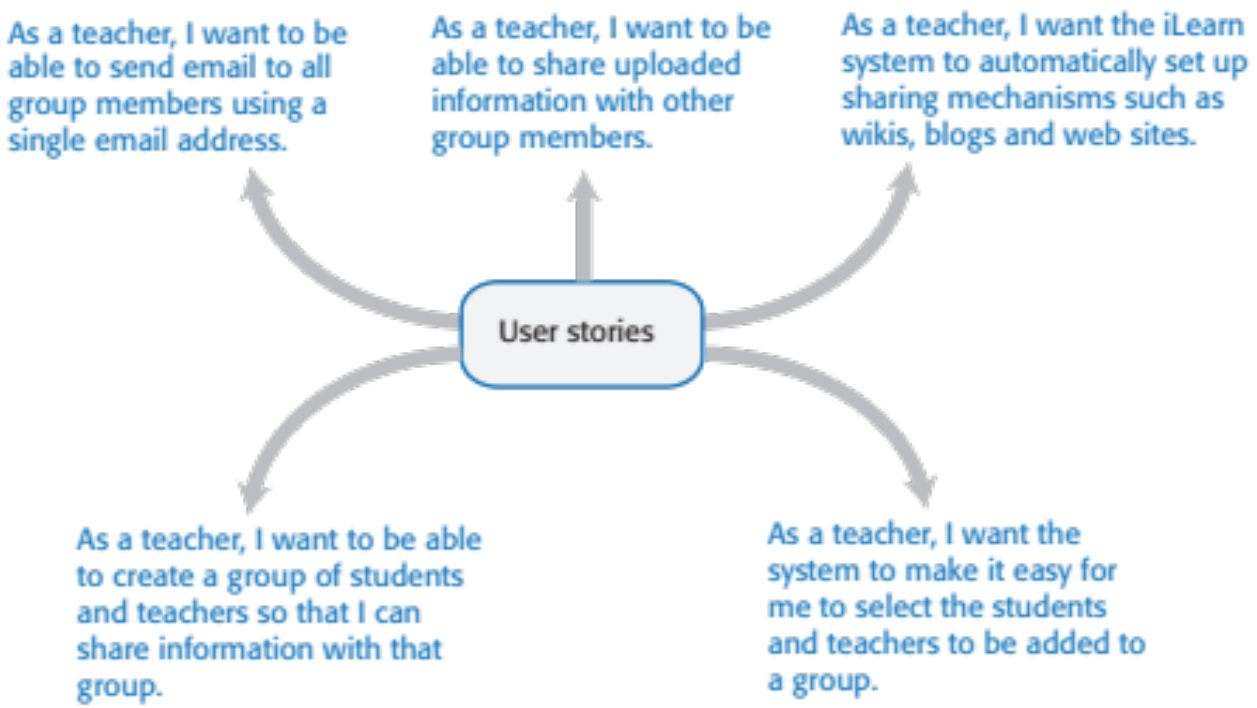
- Product backlog as user stories
- Focus on implementable unit
- Managing complex feature



Example: System backup and restoration

- Epic:
  - *As a system manager, I need a way to backup the system and restore either individual applications, files, directories, or the whole system.*
- *Stories:*
  - *As a system manager, I want to backup individual files, so that I can easily restore them if they are lost or corrupted.*
  - *As a system manager, I want to restore individual applications quickly, ensuring minimal downtime in case of application failure.*
  - *As a system manager, I need the ability to perform full system backups weekly, to ensure comprehensive data protection.*

User stories describing the group feature



Feature Derivation

- Features can be identified directly from the product vision or from scenarios.
- You can highlight phrases in Scenario
  - You should think about the features needed to support user actions, identified by active verbs, such as use and choose.

Product Vision

- **Product Vision Statement (Using Moore's Template):**
  - *For* university students and faculty - *who* need a flexible and interactive platform to manage coursework and enhance learning experiences - *the* AcademiaHub *is a* web-based learning management system - *that* offers personalized learning paths and real-time collaboration tools - *unlike* traditional one-size-fits-all educational platforms - *our product* tailors learning experiences to personalized and individual academic needs and fosters active learning through collaboration.

Derived Features from Product Vision

- **Personalized Learning Paths**: Allows users to create and follow customized learning journeys based on their academic goals and interests.
- **Real-Time Collaboration Tools**: Provides features like shared whiteboards, real-time document editing, and video conferencing to support interactive learning.
- **Adaptive Learning Analytics**: Integrates machine learning to analyze student performance and adjust content delivery to optimize learning outcomes.

Scenario

- **Scenario**: *Professor Smith wants to use an online platform to coordinate a semester-long project involving multiple groups of students, tracking their progress, scheduling milestones, and providing targeted feedback based on individual and group performance.*

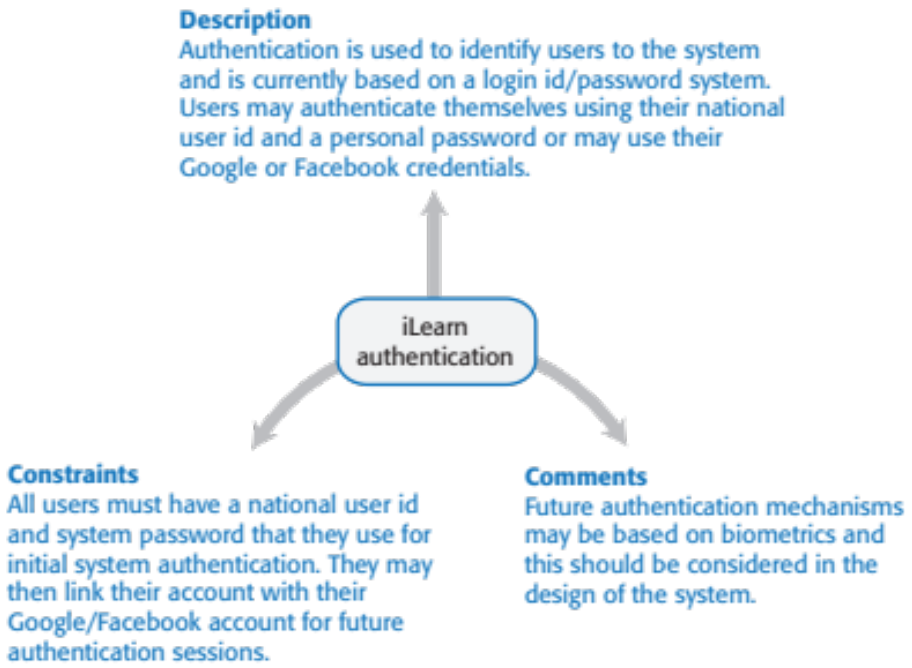
Derived Features from Scenario

- **Group Management Interface**: Tools for creating student groups, assigning roles, and managing memberships.
- **Project Tracking Dashboard**: A comprehensive dashboard that allows tracking of project milestones, submission deadlines, and overall progress for each group.
- **Feedback System**: Features enabling Professor Smith to provide individualized feedback and grade submissions, with support for audio and text comments.

Feature List

- The output of the feature identification process should be a list of features that you use for designing and implementing your product.
- There is no need to go into a lot of detail about the features at this stage. You add detail when you are implementing the feature.
- You can describe features using a standard input-action-output template by using structured narrative descriptions or by a set of user stories.

Authentication Feature example



Feature Example: Group Management Interface

- **Description**:
  - The Group Management Interface allows instructors to create, modify, and manage student groups within online courses. This feature includes tools for assigning roles, setting permissions, and tracking group membership changes over time. It aims to facilitate seamless collaboration among students by organizing them into structured groups, which can be tailored to various project types and class activities.

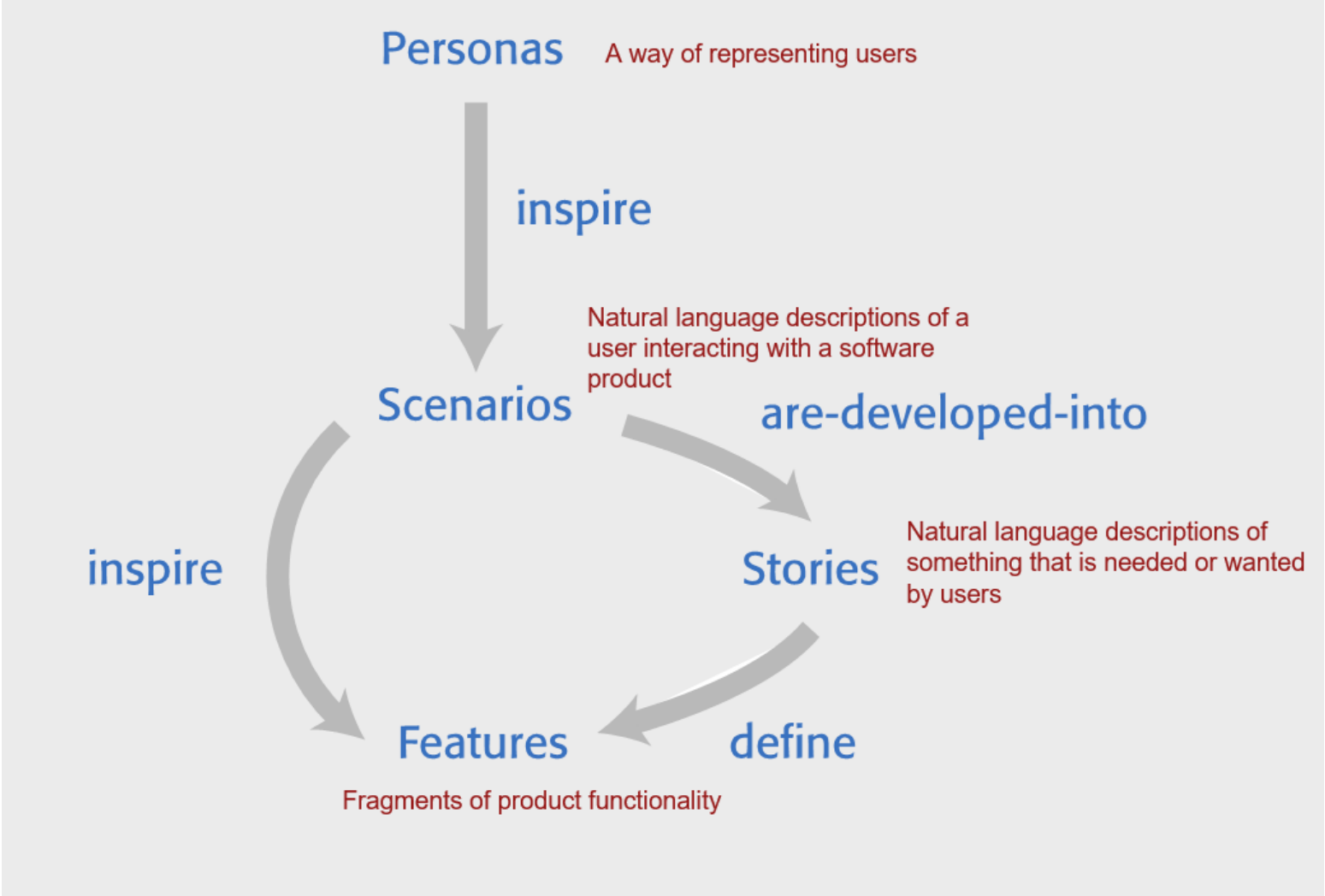
Feature Example: Group Management Interface

- Constraints:
  - User Roles: Only users identified as "Instructors" or "Teaching Assistants" have the authority to create and manage groups. Students can view group memberships but cannot alter them.
  - Scalability: The interface must efficiently handle classes of varying sizes, from small seminars to large lectures with hundreds of students, without performance issues.
  - Integration: This feature must integrate smoothly with other platform components like the Project Tracking Dashboard and Real-Time Collaboration Tools without disrupting existing functionalities.
  - Data Privacy: Must comply with educational data privacy regulations (e.g., FERPA in the U.S.) to protect student information.

Innovation and feature identification

- Scenarios and user stories should always be your starting point for identifying product features.
  - Scenarios tell you how users work at the moment. They don’t show how they might change their way of working if they had the right software to support them.
  - Stories and scenarios are ‘tools for thinking’ and they help you gain an understanding of how your software might be used. You can identify a feature set from stories and scenarios.
- User research, on its own, rarely helps you innovate and invent new ways of working.
- You should also think creatively about alternative or additional features that help users to work more efficiently or to do things differently.

From personas, to Scenarios, Features and Stories



Takeaways!

- A software product feature is a fragment of functionality that implements something that a user may need or want when using the product.
- The first stage of product development is to identify the list of product features in which you identify each feature and give a brief description of its functionality.
- Personas are ‘imagined users’ where you create a character portrait of a type of user that you think might use your product.
- A persona description should ‘paint a picture’ of a typical product user. It should describe their educational background, technology experience and why they might want to use your product.
- A scenario is a narrative that describes a situation where a user is accessing product features to do something that they want to do.

Takeaways!

- Scenarios should always be written from the user’s perspective and should be based on identified personas or real users.
- User stories are finer-grain narratives that set out, in a structured way, something that a user wants from a software system.
- User stories may be used as a way of extending and adding detail to a scenario or as part of the description of system features.
- The key influences in feature identification and design are user research, domain knowledge, product knowledge, and technology knowledge.
- You can identify features from scenarios and stories by highlighting user actions in these narratives and thinking about the features that you need to support these actions.

More Examples

Emma’s Scenario

- Emma’s scenario is different from Jack’s scenario in that it describes a common and well-understood process rather than something new.
- Emma is an e-learning sceptic, and she is not interested in innovative applications. She wants a system that will make her life easier and reduce the amount of routine administration that she has to do.
- The scenario discusses how parts of the process (setting up an email group and web page) are automated by the iLearn system.

Emma’s scenario: Using iLearn for administration

- She names the group and confirms that it should be created. The app sets up an icon on her iLearn screen to represent the group, creates an email alias for the group and asks Emma if she wishes to share the group. She shares access with everyone in the group, which means that they also see the icon on their screen. To avoid getting too many emails from students, restricts sharing of the email alias to Jamie and Claire.

- The group management app then asksEmma if she wishes to set up a group web page, wiki and blog. Emma confirms that a web page should be created and she types some text to be included on that page.

- She then accesses flickr using the icon on her screen, logs in and creates a private group to share trip photos that students and teachers have taken. She uploads some of her own photos from previous trips and emails an invitation to join the photo-sharing group to the Battlefield email list. Emma uploads material from her own laptop that she has written about the trip to iLearn and shares this with the ‘Battlefields Group’. This action adds her documents to the web page and generates an alert to group members that new material is available.

Emma’s scenario: Using iLearn for administration

- Emma is teaching the history of the First World War to a class of 14 year olds (S3). A group of S3 students are visiting the historic World War One battlefields in northern France. She want to set up a ‘battlefields group’ where the students who are attending the trip can share their research about the places they are visiting as well as their pictures and thoughts about the visit.

- From home, she logs onto the iLearn system system using her Google account credentials. Emma has two iLearn accounts – her teacher account and a parent account associated with the local primary school. The system recognises that she is a multiple account owner and asks her to select the account to be used. She chooses the teacher account and the system generates her personal welcome screen. As well as her selected applications, this also shows management apps that help teachers create and manage student groups.

- Emma selects the ‘group management’ app, which recognizes her role and school from her identity information and creates a new group. The system prompts for the class year (S3) and subject (history) and automatically populates the new group with all S3 students who are studying history. She selects those students going on the trip and adds her teacher colleagues, Jamie and Claire, to the group.

Figure 3.6 User stories from Emma's scenario