

User Stories & Object-Oriented Analysis and Design

Objectives

Highlight

Highlight the process involved in user story refinement

Describe

Describe the process of object-oriented analysis and design

Differentiate

Differentiate between the tasks involved within object-oriented analysis

Design

Design a software element using the processes involved in object-oriented design



User Stories

- What are user Stories ?
 - Short sentences outlining requirements for the system
- Who writes user stories ?
 - Everyone

I would like the foreground to be orange

I would like the font to be comic sans

I would like a button that makes me coffee

I would like a word activated assignment producer

I would like to create a copy of all of my files

User Story Examples



User Story Refinement

- How are the user stories refined ?
 - Splitting
 - Imposing constraining conditions
 - Personas

What Constitutes a Constraint

- Conditions for satisfaction
 - What the feature is required to achieve
- Specific case conditions
 - Any special considerations that need to be made (think scheduling)

I would like to create a copy of all of my files that are stored on my removable storage and create a copy of the pictures in a folder named "pictures" on my local storage

I would like to create a copy of all of my files that are stored on my removable storage and create a copy of the documents in a folder named "docs old" on my local storage

Refined User Story Example 1

Refined User Story Example 2

- Initial user story
 - *I would like to copy all of the files on my removable media to another location*
- Amended story with conditions
 - *I would like to copy all of the files on my removable media that are either a picture or document file and place them in local storage*
- Amended story with conditions and result
 - *I would like to copy all of the files on my removable media that are either a picture or document file and place them in local storage and place them in folders decorated with titles of “pictures” and “old docs” respectively.*

What is a persona ?

- As a User
- As a Logged in User.....
- As an Administrator.....
- As a Manager
- As a <insert unprofessional reference here>.....



Refined User Story with Persona

- *As a User, I would like to copy files from my removable storage to fixed storage grouping files by type and placing them into folders with respect to the given types.*

User Story Timeline

User stories are typically written at the beginning of the project

Often revisited throughout the project within AGILE development processes, particularly so for SCRUM

Treated as an equivalent to requirements specification in traditional software development

Task

- Discuss three examples of user stories for a driverless vehicle
- Pay attention to how even seemingly basic requirements can easily become more complex
- Consider the implications of the constraints you have imposed. What are the possible effects on other modules ?
- What is the most important part of a user story ?

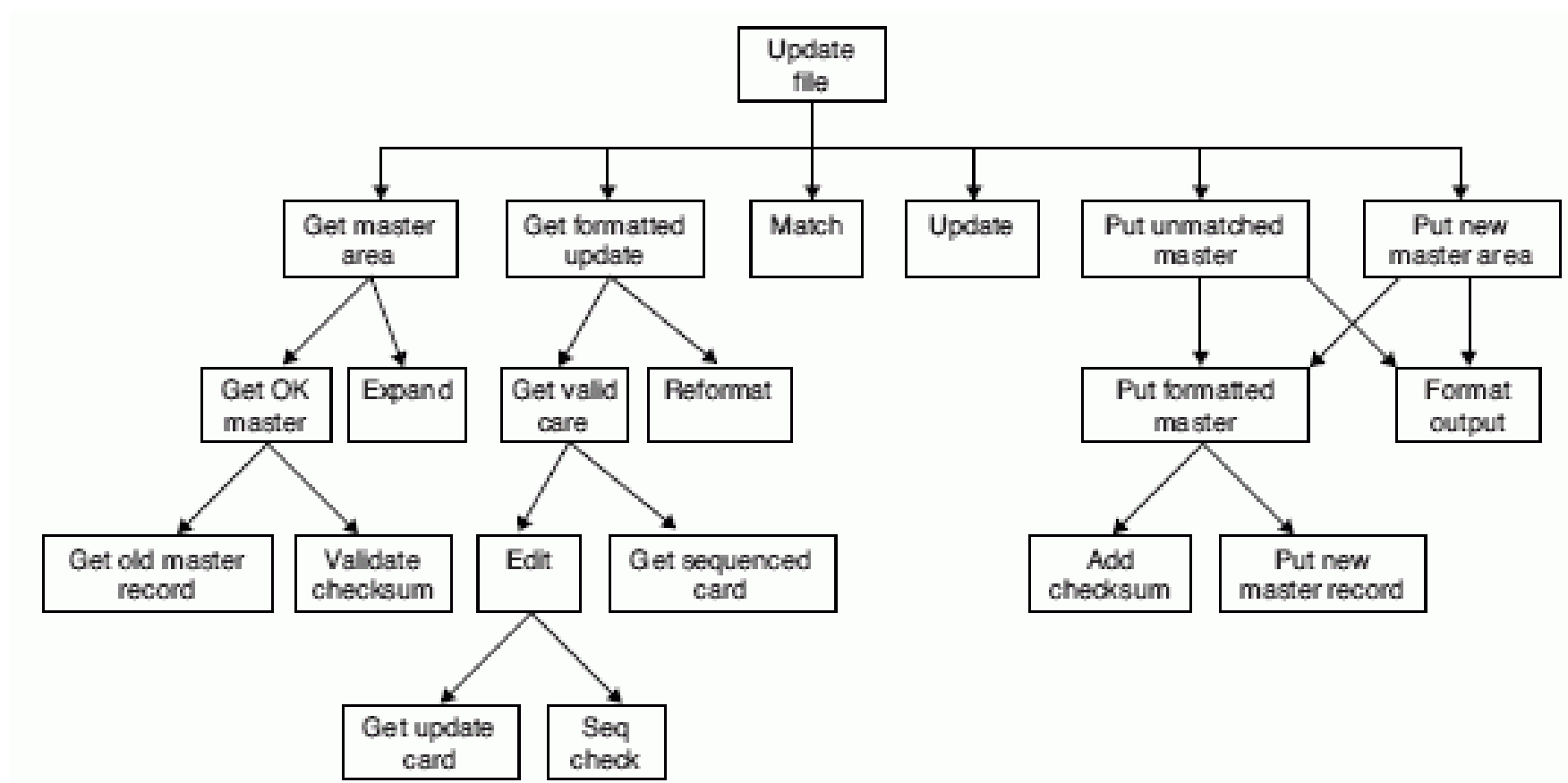
Alternative Analysis and Design Methods

- Algorithmic Decomposition – Traditional means of systems analysis
- Data driven Analysis – Emphasis placed upon the transition of data through the system
- Object Decomposition – Compartmentalisation of behaviours and data structures interactions

Algorithmic Modelling

- Analysis and design process
 - Typically utilised in traditional software development methods
 - Top-Down approach
 - Structured linear approach to systems analysis and design

Algorithmic Modelling Example



Object-Orientation

- What is object-oriented development ?
 - Compartmentalisation of software elements so that they may be treated as separate entities irrespective of their function
- Development is only a small part of the process however

Concepts

- What is an object ?
 - A representation of a real world entity





Objects

- Distinctive characteristics similar to real – world counterparts
 - Properties
 - Methods
 - Attributes
- Fundamental building blocks for OOPS and OOAD

Object-Oriented Analysis

- Purpose –
 - To model functional aspects of the system
- Process –
 - Different to that of traditional software design
 - System is treated as a collection of objects and modelled using this prism
 - 5 Distinct stages

Analysis Process Stages

1

Object
identification /
Decomposition

2

Object
Organisation

3

Specification
of interactivity

4

Specification
of external
behaviour

5

Specification
of internal
behaviour

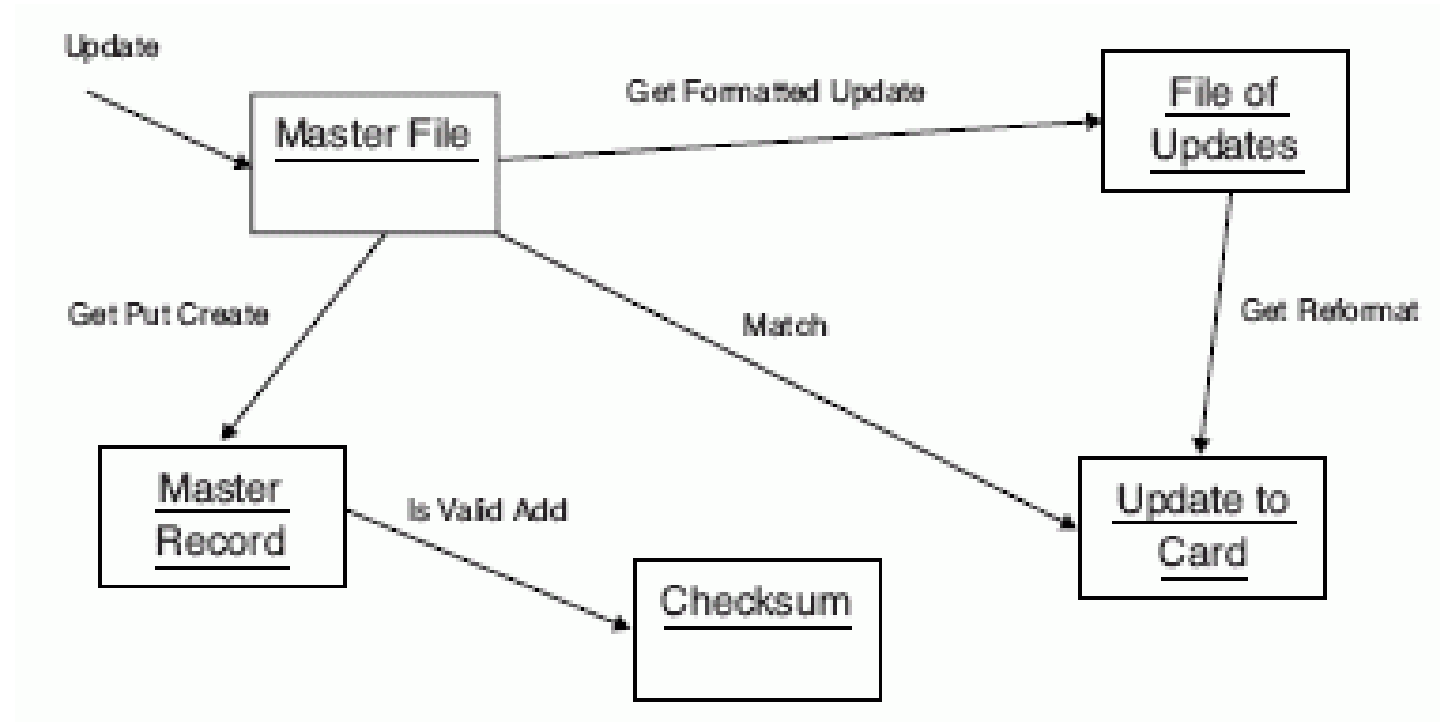
Now What ?

- We have a list of object elements
- We have attributed many of the behaviour elements and data structures to those objects
- What follows the analysis stage ?
 - Object Design
 - Iterations

Object-Oriented Design

- Extension of the analysis stage, outlining the system
- Constraints are imposed at this stage
- Greater granularity is introduced here, noting the implications of the languages, technologies and hardware platforms that are to be utilised
- OOD is more representative of how things should fit together rather than what should exist

Object-Oriented Design Example



Which should I use ?

- Algorithmic Approach-
 - Identifies the ordering and greater detail in process interaction
- Object-model approach –
 - Identifies agency of the objects in their effecting of actions or the affect of actions upon them.
- Which suits your audience and application best