

BPMN 2.0

Descriptive Constructs

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Watch this lecture and download the slides from
<http://jarrar-courses.blogspot.com/2015/01/dataandbusinessprocessmodelling.html>

Some content in this lecture are based on [4]
<http://www.bpmn-tool.com/en/tutorial/>

Reading and practice

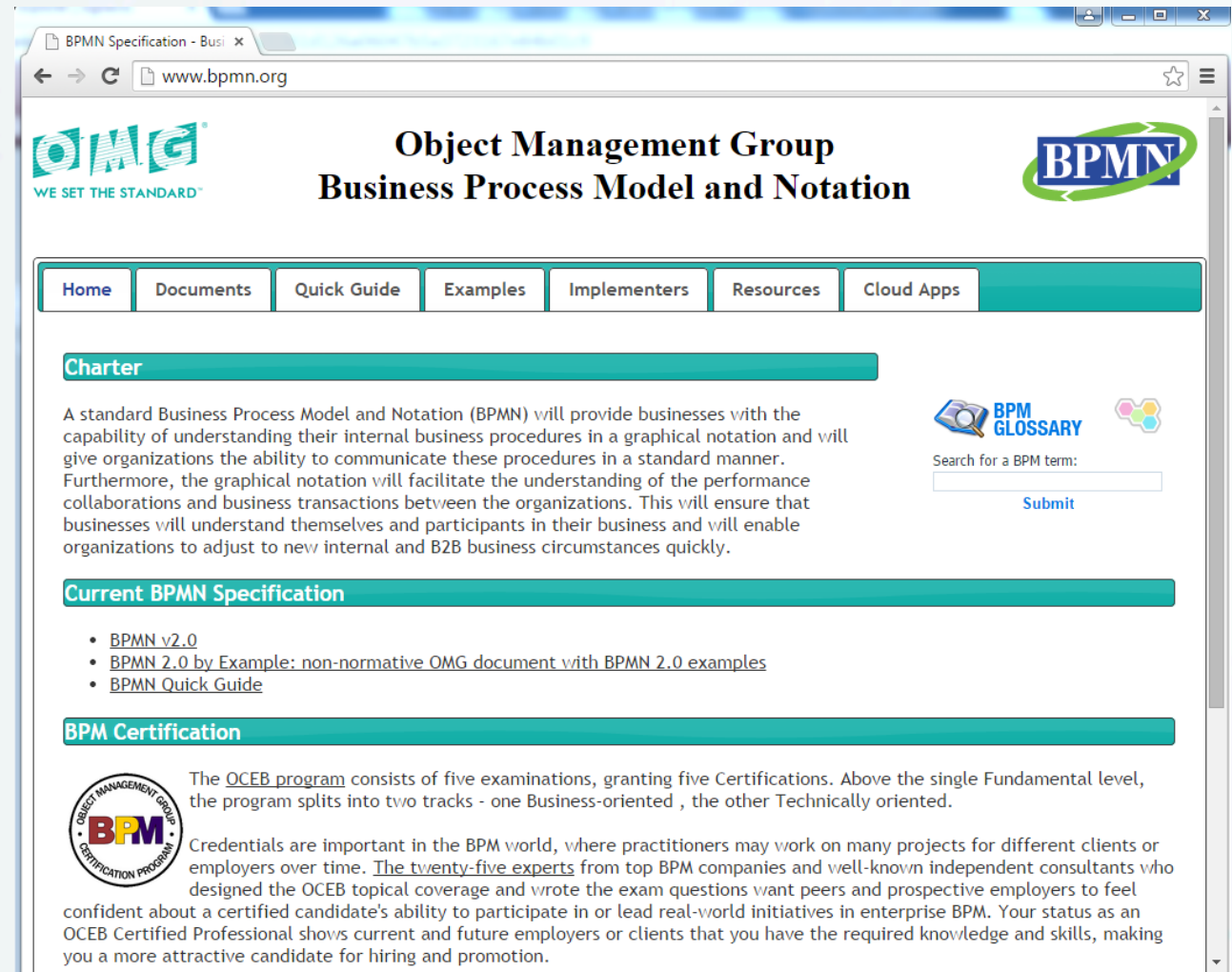
- [1] Every material in these slides.
- [2] Chapter three of Mathias Weske BPM book.
- [3] Practice on using Signavio process editor.
- [4] Signavio Process Editor (Academic BPM initiative)

Keywords: Data Engineering, Data Modeling, Conceptual Data Modeling, ORM, Object Role Modeling, Information Modeling, Schema engineering, Business Rules, integrity constraints, Derivation rules, Logic, verbalization of business rules, rules contradictions, rules implications, Business Process Engineering, Business Process Management, Business Process Modelling, Process Mapping, Process identification, process re-engineering, process re-engineering, Process Optimization, Process execution.

هندسة الـبيانات، مخطط بيانات المفاهيمية، النمذجة المفاهيمية للبيانات، هندسة العمليات، إعادة هندسة العمليات الإدارية

Business Process Model and Notation

BPMN 2.0 is a MOG since in 2011 as a process modeling and notation language. <http://www.bpmn.org/>



The screenshot shows the homepage of the Object Management Group (OMG) Business Process Model and Notation (BPMN) website. The browser window has a single tab titled 'BPMN Specification - Busi x' and the address bar shows 'www.bpmn.org'. The website header features the OMG logo with the tagline 'WE SET THE STANDARD™' on the left, the title 'Object Management Group Business Process Model and Notation' in the center, and the BPMN logo on the right. Below the header is a navigation bar with links: Home, Documents, Quick Guide, Examples, Implementers, Resources, and Cloud Apps. The main content area is divided into sections. The 'Charter' section explains the purpose of BPMN as a standard for business procedures. The 'Current BPMN Specification' section lists links for BPMN v2.0, a non-normative document with examples, and a quick guide. The 'BPM Certification' section describes the OCEB program, which consists of five examinations, and mentions that twenty-five experts from top BPM companies designed the program. A circular logo for the 'BPM CERTIFICATION PROGRAM' is also visible.

Object Management Group
Business Process Model and Notation

Charter

A standard Business Process Model and Notation (BPMN) will provide businesses with the capability of understanding their internal business procedures in a graphical notation and will give organizations the ability to communicate these procedures in a standard manner. Furthermore, the graphical notation will facilitate the understanding of the performance collaborations and business transactions between the organizations. This will ensure that businesses will understand themselves and participants in their business and will enable organizations to adjust to new internal and B2B business circumstances quickly.

Current BPMN Specification

- [BPMN v2.0](#)
- [BPMN 2.0 by Example: non-normative OMG document with BPMN 2.0 examples](#)
- [BPMN Quick Guide](#)

BPM Certification

The OCEB program consists of five examinations, granting five Certifications. Above the single Fundamental level, the program splits into two tracks - one Business-oriented, the other Technically oriented.

Credentials are important in the BPM world, where practitioners may work on many projects for different clients or employers over time. The twenty-five experts from top BPM companies and well-known independent consultants who designed the OCEB topical coverage and wrote the exam questions want peers and prospective employers to feel confident about a certified candidate's ability to participate in or lead real-world initiatives in enterprise BPM. Your status as an OCEB Certified Professional shows current and future employers or clients that you have the required knowledge and skills, making you a more attractive candidate for hiring and promotion.

OMG Certified Expert in BPM 2

OCEB program consist of five examination, which grant five certifications.

Two fundamental exams, then three certifications split into either business or technical track.



BPMN 2.0 Modeling Constructs

BPMN 2.0 has a set of modeling elements such as:

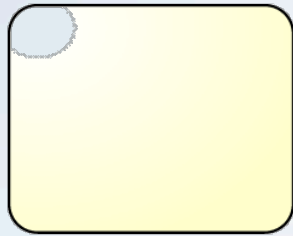
- Activities
- Connecting objects
- Start events
- End events
- Artifacts
- Gateways
- Swimlanes (pool/lane, ...)
- Data objects
- Throwing intermediate events
- Catching intermediate events

BPMN Descriptive Elements

The selected BPMN 2.0 descriptive elements in this course are contained in this lecture slides.

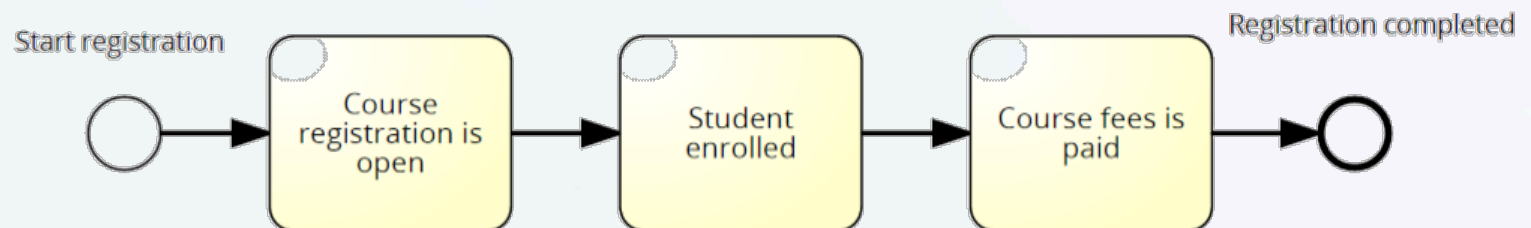
Descriptive elements are the basic BPMN symbols that can be used to model a business process.

Activities



The **task** is a unit of work – the job to be performed.

Task can be performed by human, system or even it can be an entire process.



Connecting Constructs



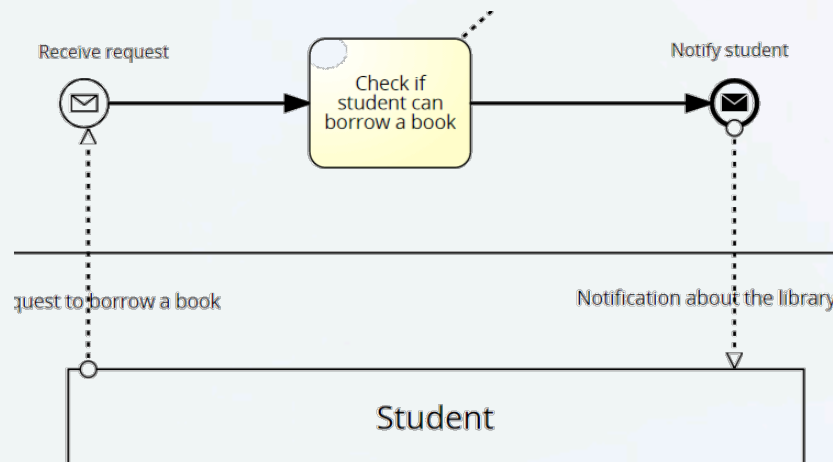
Sequence Flow define the execution order of activities.



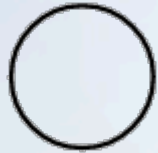
Message Flow symbolizes information flow across organizational boundaries.

Basic rules: attached to pools, activities or message events.

The order of message exchanges can be specified by combining the message flow and sequence flow.



Start Events



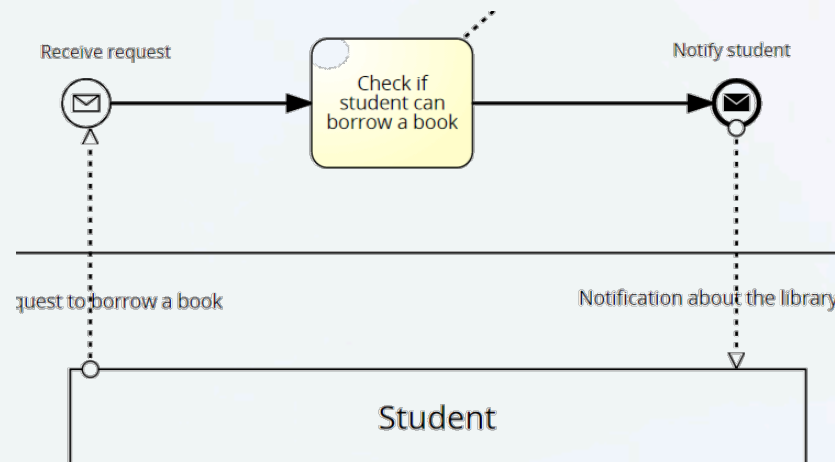
Un-typed start event typically marks the standard start of a process.



Start Message Event, a process instance is started on receive of a message.



Start Timer Event, a process instance is started on cyclic timer events, points in time, after time spans or time outs.



End Events



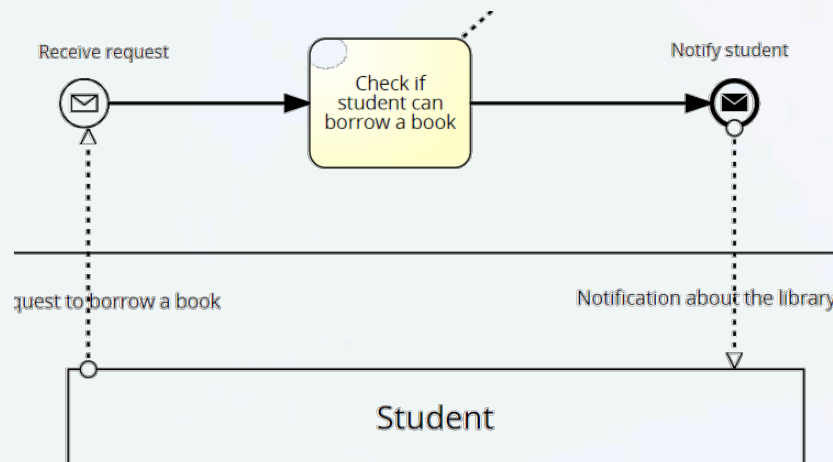
The un-typed **end event** typically marks the standard end of a process.



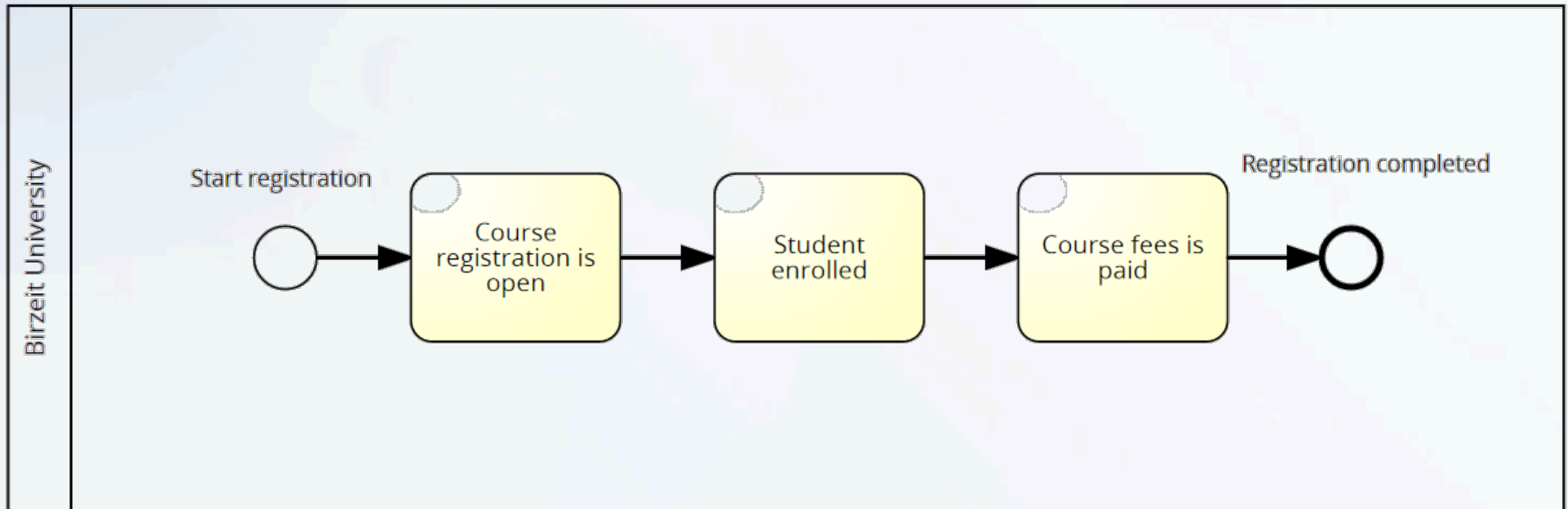
End Message Event, at the end of the process, a message is sent.



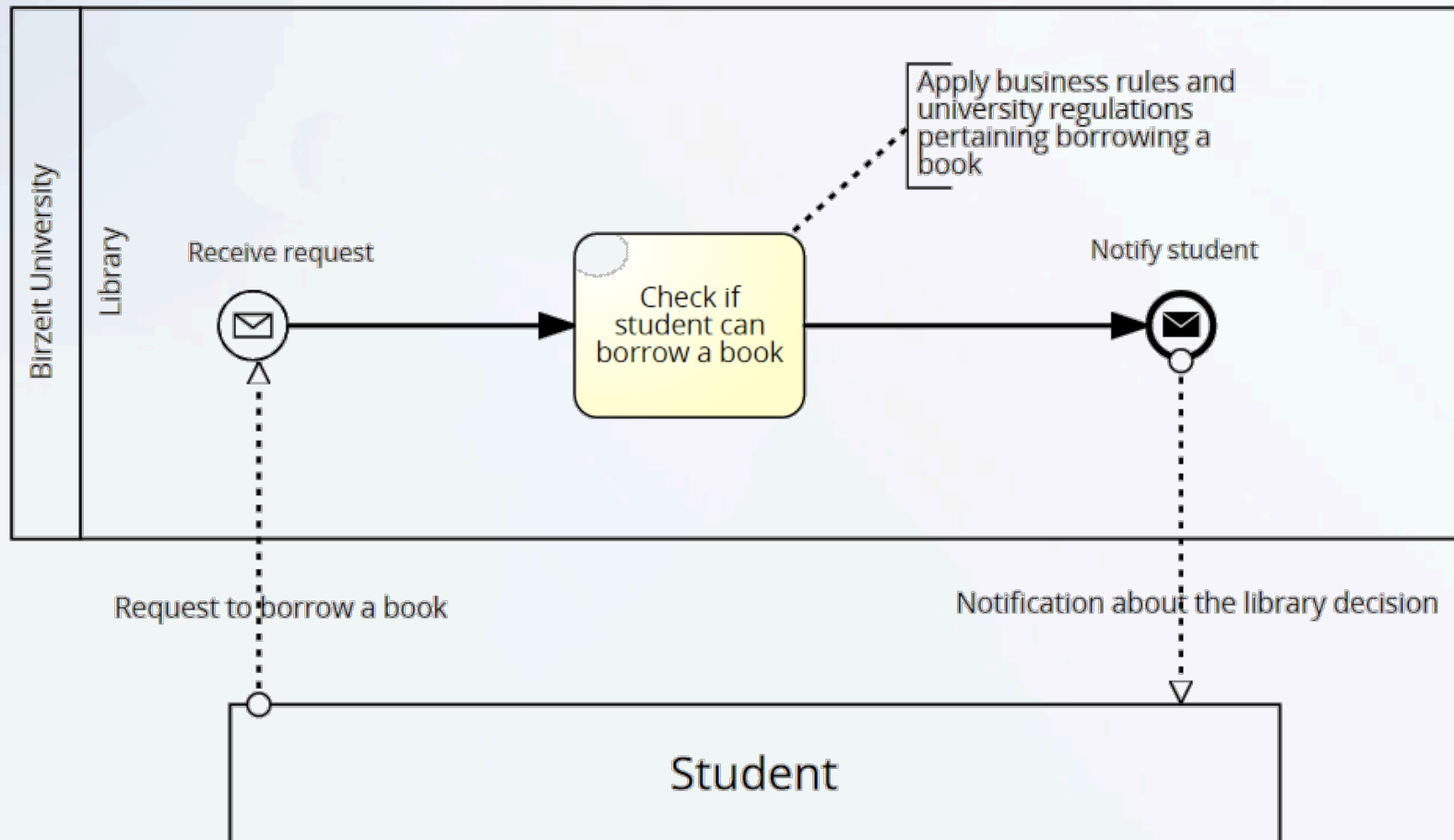
Terminate End Event, triggering the immediate termination of a process instance. All steps in execution of parallel branches are terminated.



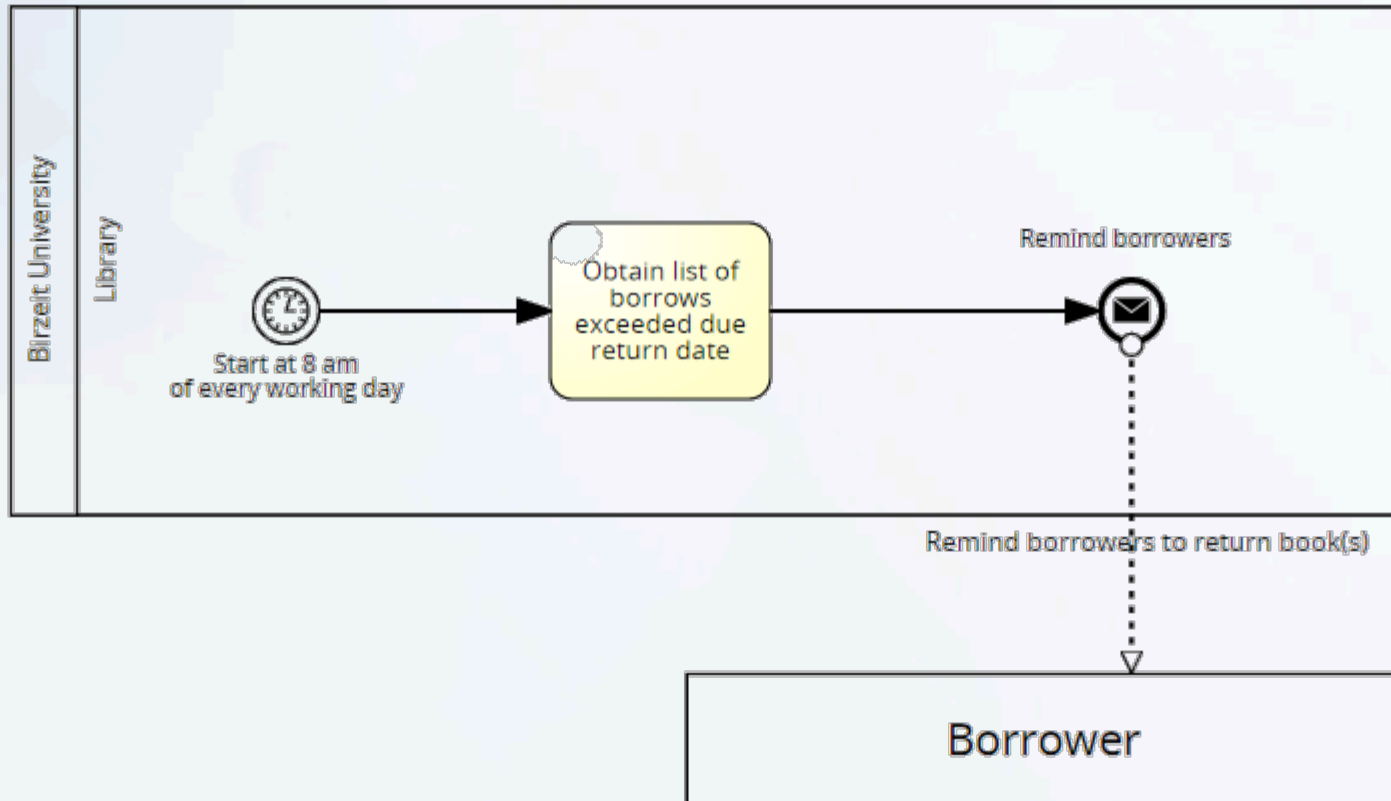
Example: Course Enrollment



Example: Book Borrowing Validation



Example: Start Timer Event



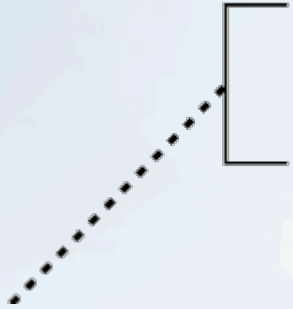
Some Rules of Thumb

There are a set of tips and rules to have a valid process models, below are two of them:

- Process model should have start and end event.
- All process branches should be closed.

More rules to be provided as progressing with the course.

Artifacts



Any text can be associated with a **text annotation** to provide additional documentation.



Group

Any arbitrary set of objects can be defined as group to show that they are logically together.

Gateways

Data-based exclusive (XOR) gateway



When splitting, it routes the sequence flow to exactly one of the outgoing branches based on conditions.

When merging, it waits one incoming branch to complete before triggering the outgoing flow .

Gateways

Parallel Gateway



When splitting, the sequence flow, all outgoing branches are activated simultaneously.

When merging, parallel branches it waits for all incoming branches to complete before triggering the outgoing flow.

Pool

Pools represent responsibilities for activities in a process.

Pool represent whole organization units.



Lanes

Lanes same as pools represent responsibilities for activities in a process.

However, **lanes subdivide pools or other lanes hierarchically.**

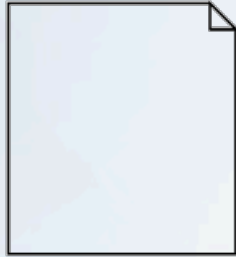


Collapsed Pool

Collapsed pools hide all internals of the contained processes.



Data Objects



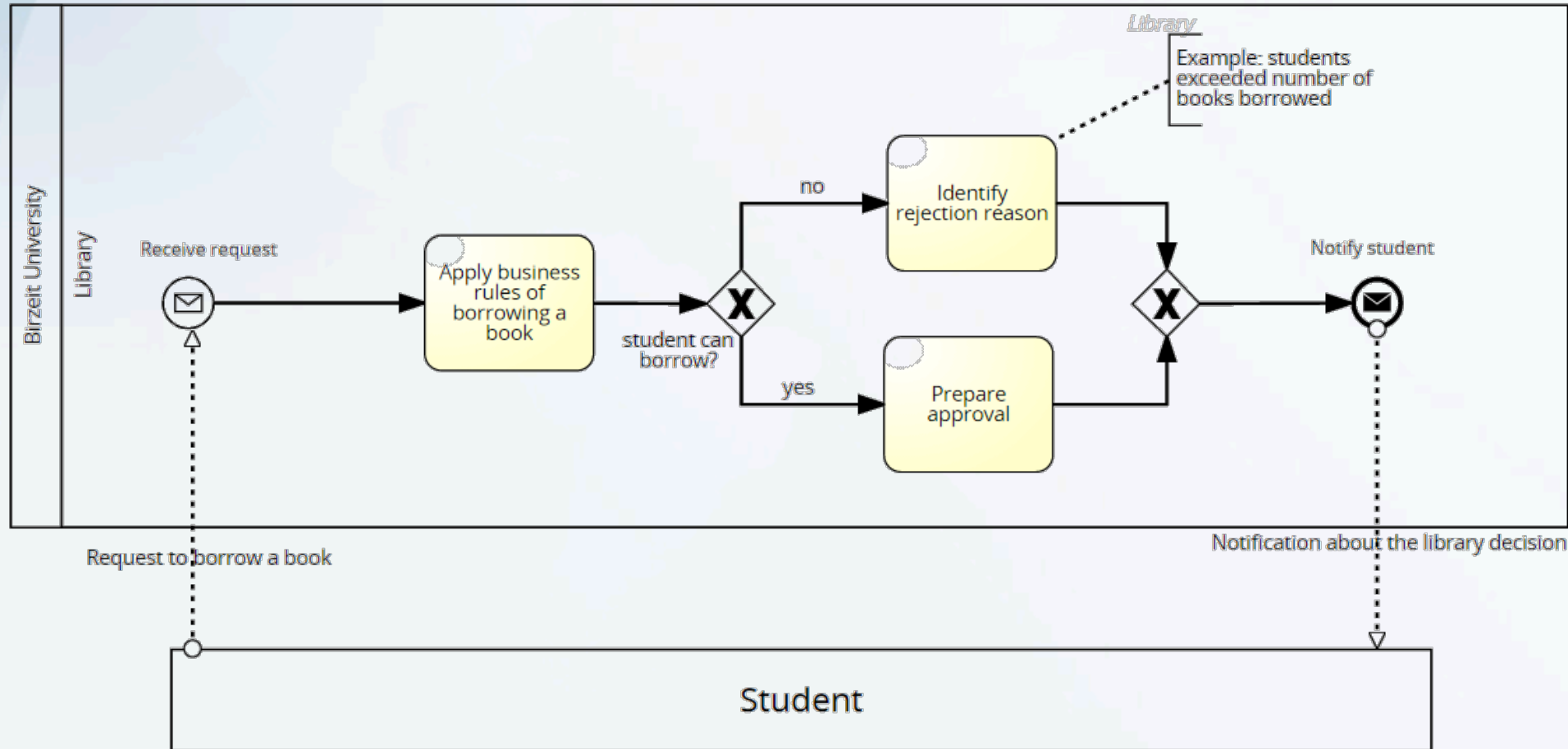
Data object represents information flowing through the process, such as business documents, emails or letters.



Data store, a place where the process can read or write data, e.g. a database or a filing cabinet.

It persists beyond the lifetime of the process instance.

Example: Book Borrow - elaborated



Example: Book Borrow - elaborated

