

Discussion 4: Difference between a business process and a software development process

Discussion Topic:

What is the difference between a business process and a software development process? Provide an example of each. Feel free to include a diagram or model example in your post.

My Post:

Hello Class,

In this post, I explore business processes and software development processes. While similar and related, the business processes define how a business achieves its goals, software development processes' goal is to build applications that support those business processes. This post also examines the difference between the two by defining their scopes, goals, and methodologies. Additionally, the post explores the various modeling tools used to define and illustrate these processes, including BPM methodologies, BPMN, UML diagrams (Use Case, Activity, and Interaction Overview), and SDLC frameworks like Agile.

Definition of Business Processes and Software Development Process

Business processes are sets of sequential activities performed by stakeholders (e.g., people, departments, systems) to achieve an organizational goal (Kissflow, 2024). They represent "how" a business achieves its objectives. In other words, they represent a business's operations, workflow, and interactions among stakeholders.

On the other hand, software development processes are usually associated with the software development life cycle (SDLC) and the Agile methodology (Unhelkar, 2028). They can be defined as a series of steps for designing, creating, testing, and maintaining software applications (Browser Stack, 2024).

As shown by the definitions above, business processes and software development processes are related and interconnected but are distinct in their purpose. They have different scopes, focuses, and goals (business operations versus business software creation).

Business Processes vs Software Development Processes

The primary goal of business processes is to achieve a business objective, such as delivering a product or providing a service. On the other hand, the primary goal of software development processes is to design, develop, deploy, and maintain a software application that meets a business' needs by meeting the business software requirements.

Additionally, the scope of business processes includes the steps, activities, or tasks involved in achieving the business goal. On the other hand, the scope of software development processes includes capturing the functional and non-functional requirements of the business (user needs and business requirements) and the technical aspects of creating software, including coding, testing, deployment, and maintenance of the software.

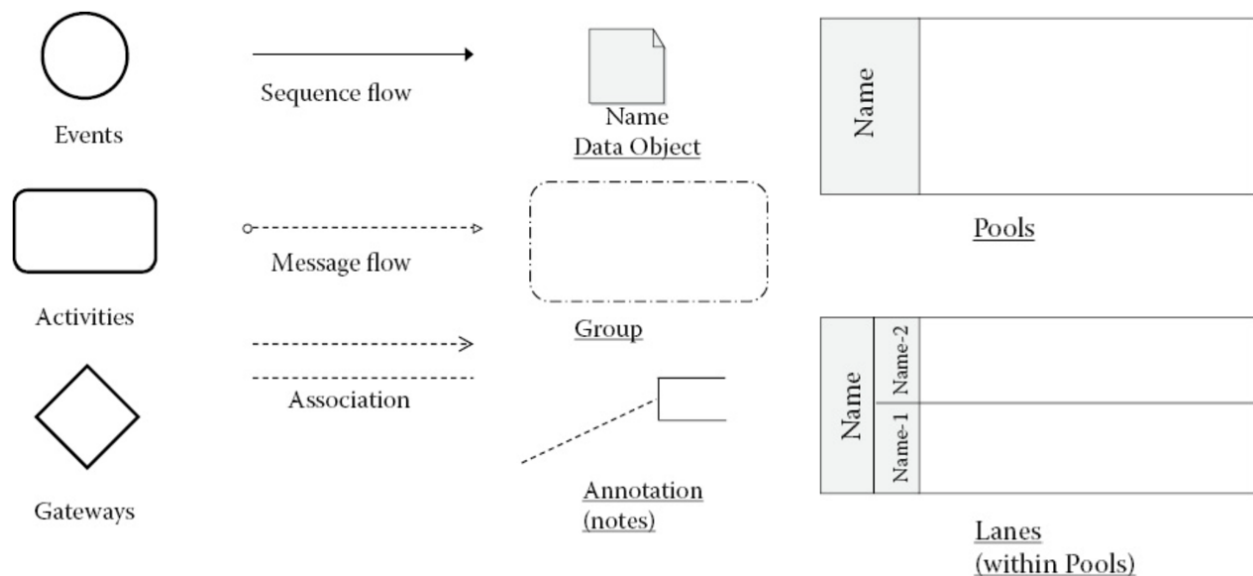
Furthermore, software development usually uses well-defined mythology such as Agile, Waterfall, and Scrum to capture and define processes. On the other hand, business modeling does not adhere to a single accepted "methodology" to define processes, instead various frameworks, approaches, and improvement techniques are used to define and describe a business's processes.

Modeling Tools

Business processes are often modeled and defined using Business Process Management (BPM) which describes various methodologies that are used to manage business processes (Nehra, 2020). Methodologies such as Lean, Six Sigma, and Total Quality Management (TQM) each having different approaches to business process improvement. To model and illustrate business processes, these methodologies often use Flowcharts, UML Use case diagrams, UML activity diagrams, and Business Process Management Notation (BPMN) diagrams. BPMN is a rich set of notations that are used to create business process models that can be embedded in standardized case tools, shared, and optimized (Unhelkar, 2018). See Figure 1 for the BPMN diagram's main components.

Figure 1

BPMN Diagram Main Components

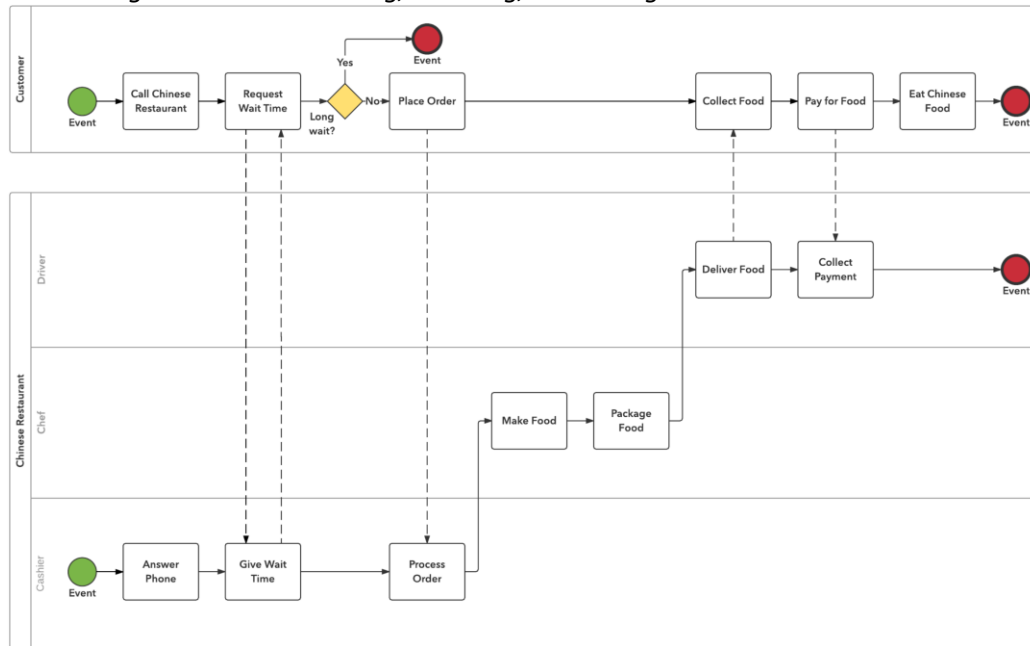


Note: from “Chapter 7 – Activity diagrams, interaction overview diagrams, and business process models. *Software engineering with UML*. CRC Press” by Unhelkar (2018). Modified.

The BPMN diagram below illustrates a scenario of a customer calling, ordering, and eating at a Chinese restaurant

Figure 2

BPMN Diagram Customer Calling, Ordering, and Eating at a Chinese Restaurant

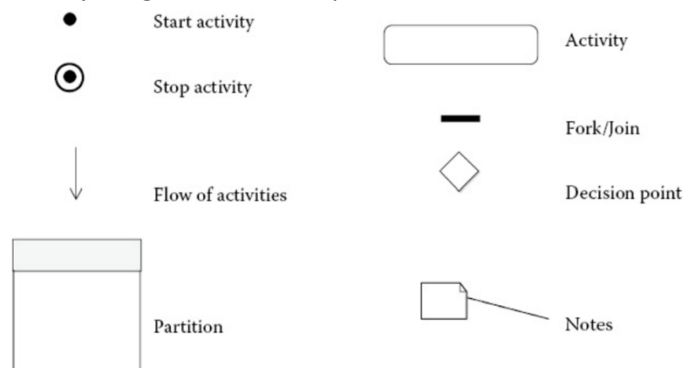


Note: from “Diagramming basics: A BPMN tutorial” by Lucidchart (n.d. a).

Software development processes usually use SDLC methodologies such as Agile Scum to design, develop, deploy, and maintain a software application. These mythologies often use diagrams such as UML Use Case Diagrams, UML activity diagrams, and UML Interaction Overview Diagrams (IOD). Note that the UML use case and activity diagrams are also used by BMP methodologies. See Figure 3 for the activity diagram’s main components and Figure 5 for the IOD diagram’s main components.

Figure 3

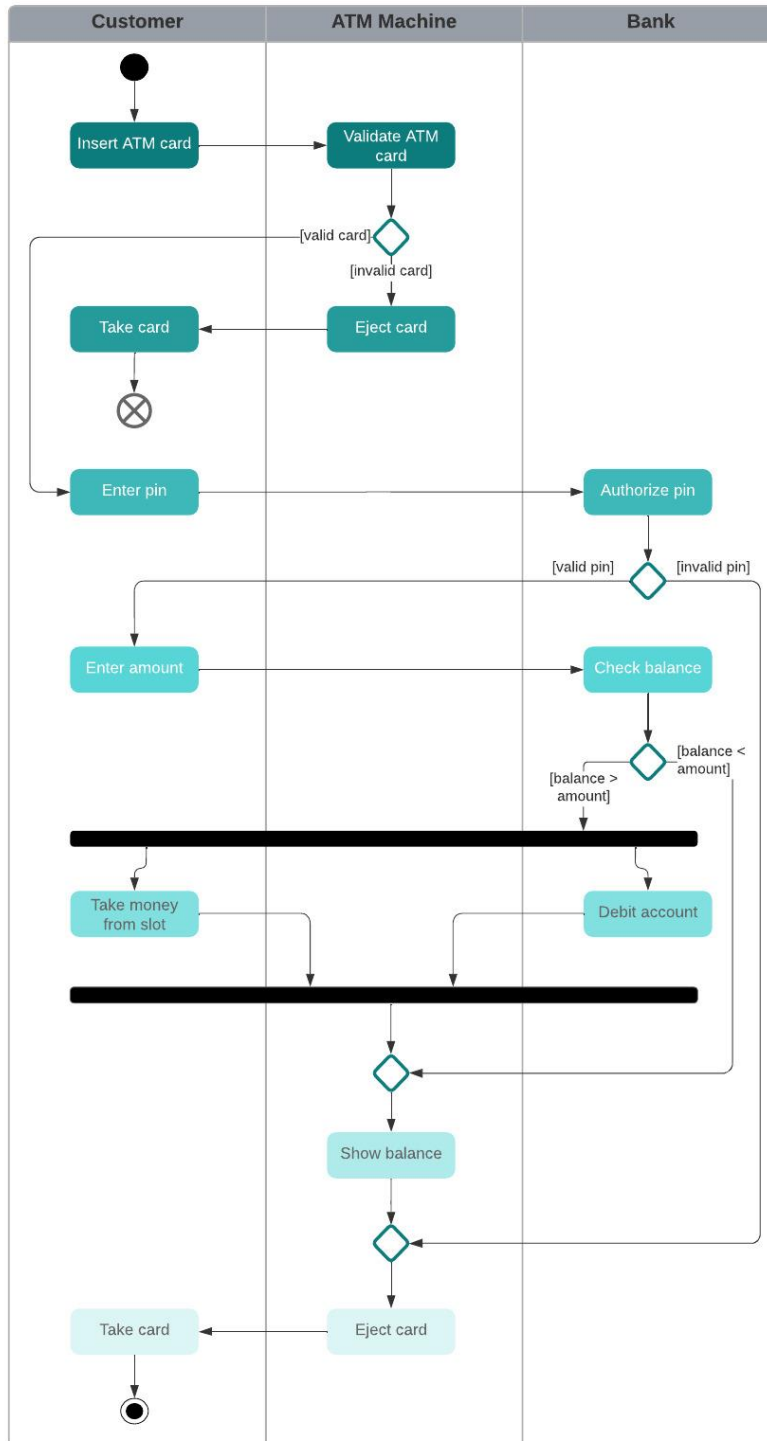
Activity Diagram Main Components



Note: from “Chapter 7 – Activity diagrams, interaction overview diagrams, and business process models. *Software engineering with UML*. CRC Press” by Unhelkar (2018).

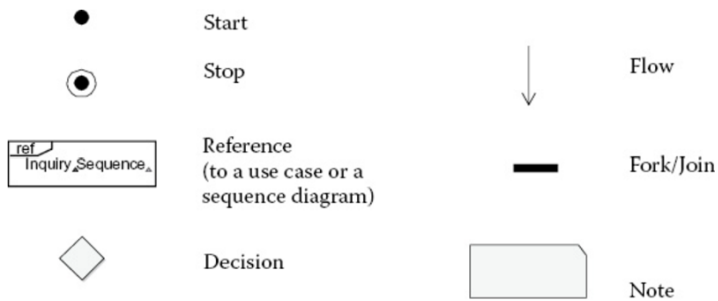
The UML activity diagram below illustrates a scenario of a customer using a bank ATM machine.

Figure 4
Activity Diagram of a Customer Using an ATM Machine



Note: from "Activity diagram with swimlanes example" by Lucichart (n.d. b)

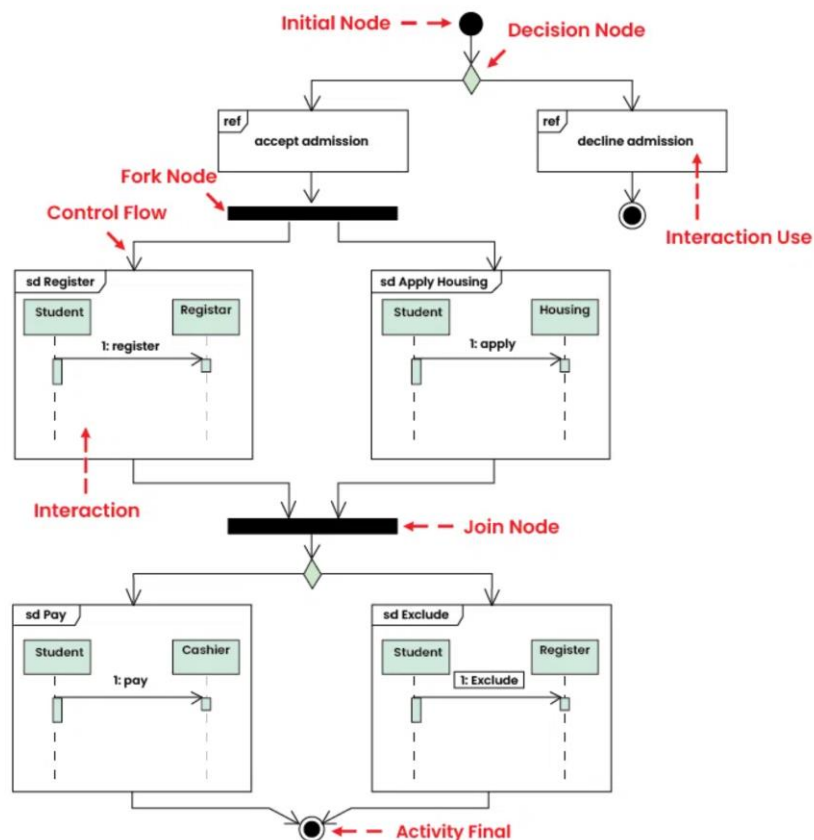
Figure 5
Interaction Overview Diagrams Main Components



Note: from “Chapter 7 – Activity diagrams, interaction overview diagrams, and business process models. *Software engineering with UML*. CRC Press” by Unhelkar (2018).

The UML Interaction overview diagram below illustrates a scenario of a student using a college admission system.

Figure 6
UML Interaction Overview Diagram of a Student Using a College Admission System



Note: from “Interaction Overview Diagrams | Unified Modeling Language (UML)” by Gurdee (2024).

Finally, the table below summarizes the differences between business processes and software development processes.

Table 1

Business Processes vs Software Development Processes.

Business Processes		Software Development Processes
Definition	Sets of sequential activities performed by stakeholders to achieve an organizational goal.	Series of steps for designing, creating, testing, and maintaining software applications.
Primary Goal	Achieve a business objective (e.g., deliver a product, provide a service).	Design, develop, deploy, and maintain a software application that meets business needs.
Scope	Steps, activities, or tasks involved in achieving the business goal; includes all operational aspects of the business	Capturing functional and non-functional requirements, technical aspects of software creation, testing, deployment, and maintenance.
Focus	"How" a business achieves its objectives; business operations, workflow, and stakeholder interactions.	Creating software that supports business operations, often automating aspects of the business processes
Methodologies	Various frameworks, approaches, and improvement techniques (e.g., Lean, Six Sigma, TQM). No single standard methodology. However they all fall under BPM.	Well-defined methodologies (e.g., Agile, Waterfall, Scrum).
Modeling Tools	Flowcharts, BPMN, UML Use Case Diagrams, UML Activity Diagrams.	UML Use Case Diagrams, UML Activity Diagrams, UML Interaction Overview Diagrams (IOD), SDLC methodologies
Example	A customer ordering and eating at a restaurant (as illustrated in the BPMN diagram).	A customer using a bank ATM or a student using a college admission system (as illustrated in the activity and IOD diagrams)

In conclusion, business processes and software development processes are distinct but related. Business processes define how a business achieves its goals, while software development processes design applications to support those operations.

-Alex

References:

Browser Stack (2024, September 18). *Understanding the software development process*. BrowserStack.
<https://www.browserstack.com/guide/learn-software-development-process>

Gurdee (2024, March 4). *Interaction overview diagrams | Unified Modeling Language (UML)*. GeeksForGeeks. <https://www.geeksforgeeks.org/interaction-overview-diagrams-unified-modeling-language-uml/>

Kissflow. (2024, December 24). *Business Process 101 : Definition, Steps and Example [Guide for 2025]*. <https://kissflow.com/workflow/bpm/business-process/#:~:text=A%20business%20process%20is%20defined,attain%20a%20pre%2Ddefined%20objective.>

Lucidchart (n.d. a). *Diagramming basics: A BPMN tutorial*. Lucidchart. <https://www.lucidchart.com/blog/diagrams-for-dummies-a-BPMN-tutorial>

Lucidchart (n.d. b). Activity diagram with swimlanes example [App]. Lucidchart App. https://lucid.app/lucidchart/1172f431-8bbd-4c8c-929f-b1f805cad037/view?anonId=0.268624821943df44f0a&sessionId=2025-01-06T23%3A46%3A56.942Z&sessionId=0.d0e34dd81943df44f0c&fromMarketing=true&_gl=1*190v7rn*_gcl_aw*R0NMLjE3MzQ3OTM2NzAuQ2p3S0NBaUE2NW03QmhBd0Vpd0FBZ3U0SkdacVFra0IKcDFWLUt1c1pNeTNfU2dlUKlMb2h2NGFrUDNya0Uzd0l3YVM4ZTlCZ3ZOAG5Sb0NuYWNRQXZEX0J3RQ..*_gcl_au*MTk2MTYzNDY4Ny4xNzM0MjA0OTQ3*_ga*MjYyMDU1OTQ3LjE3MzQyMDQ5NDk.*_ga_MPV5H3XMB5*MTczNjIwNjIwOS41LjEuMTczNjIwNzIxMC4wLjAuMA..&usecase=uml&page=0_0#

Nehra, M. (2020, September 16). Business process management in software companies. ITChronicles. <https://itchronicles.com/business-process-management/business-process-management-in-software-companies/>

Unhelkar, B. (2018). Chapter 7 – Activity diagrams, interaction overview diagrams, and business process models. *Software engineering with UML*. CRC Press. ISBN 9781138297432