

## Outline

- Processing.py
    - Interaction
  - Activity Theory
- Group project collaboration

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Lecture 18: Processing.Py + Activity Theory

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# CODE, CULTURE, AND PRACTICE

Bin  
Chance  
Nathan  
Alex  
Bitsy  
Minh

BenEhrlich  
Isaac  
Sienna  
Jude  
Sandra

BenEpstein  
Chloe  
Ryan M  
David  
Katja

Trevor  
Cameron  
Victoria  
Derek  
Sam

Rey  
Ryan L  
Natalie  
Alexis  
Evan

# input

- For each of the five files in the Lecture18PyProcessing folders
- Make a modification together and submit in a directory

# Design does not occur in a vacuum

Activity Theory – consider full context of interaction between people and places, objects, and each other.

**High (goals):**

why they are doing X in context.

Value systems,  
philosophies driving the  
interaction.

**Middle (functions):**

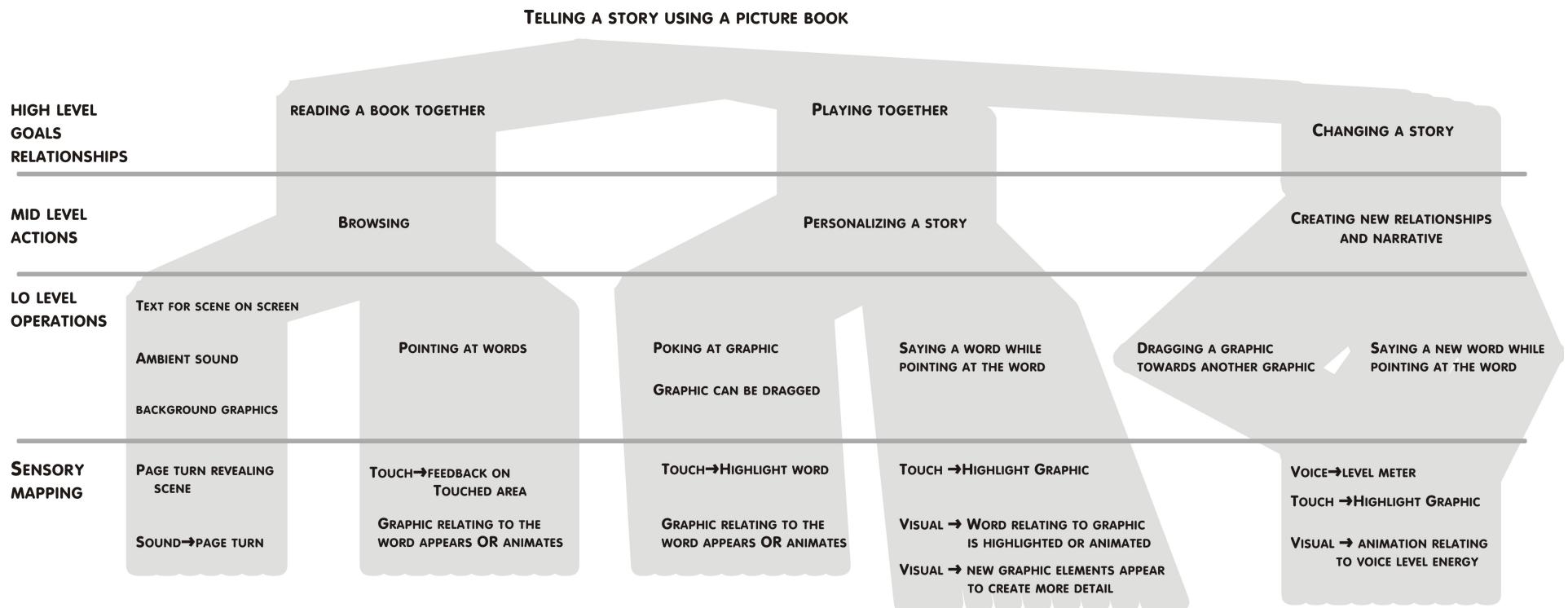
what they are trying to do.

How things work or  
don't work. What is the  
action they perform?

**Lower (interface):**

what they sense and experience

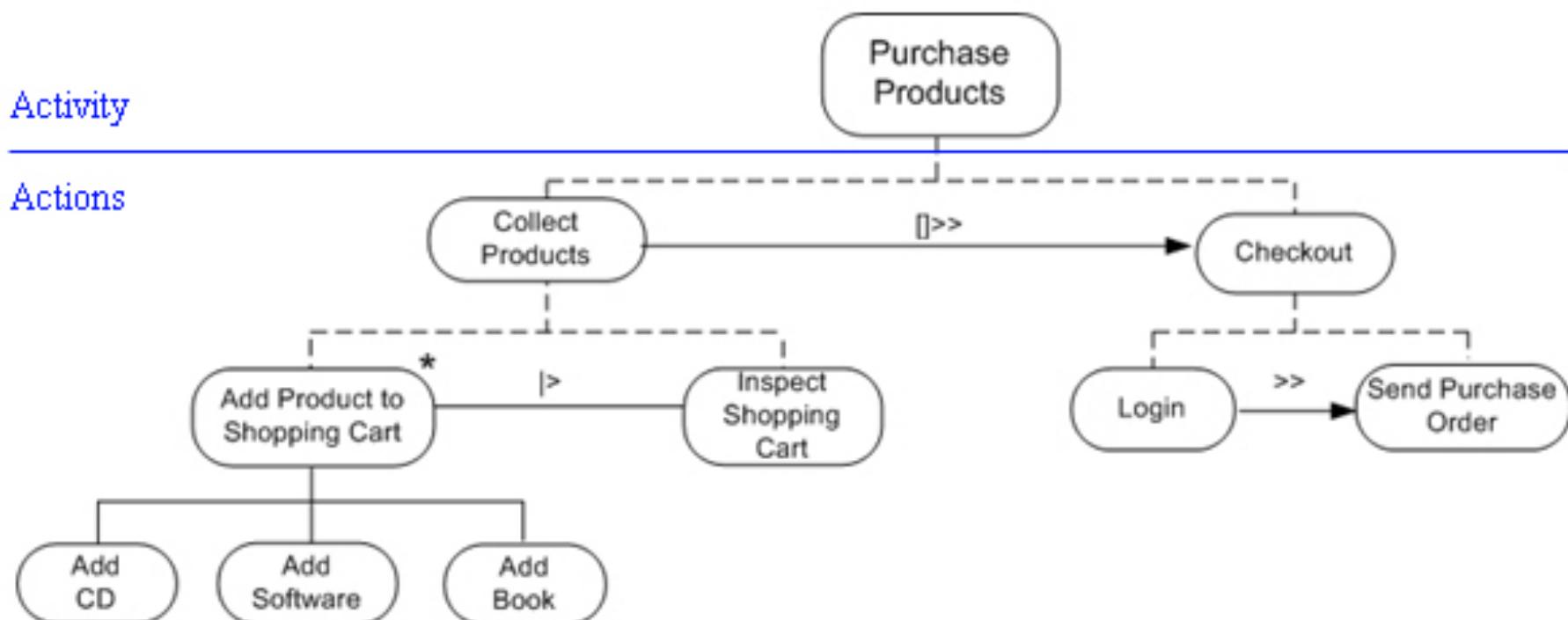
The technical details of  
the relationship  
between input and  
output.

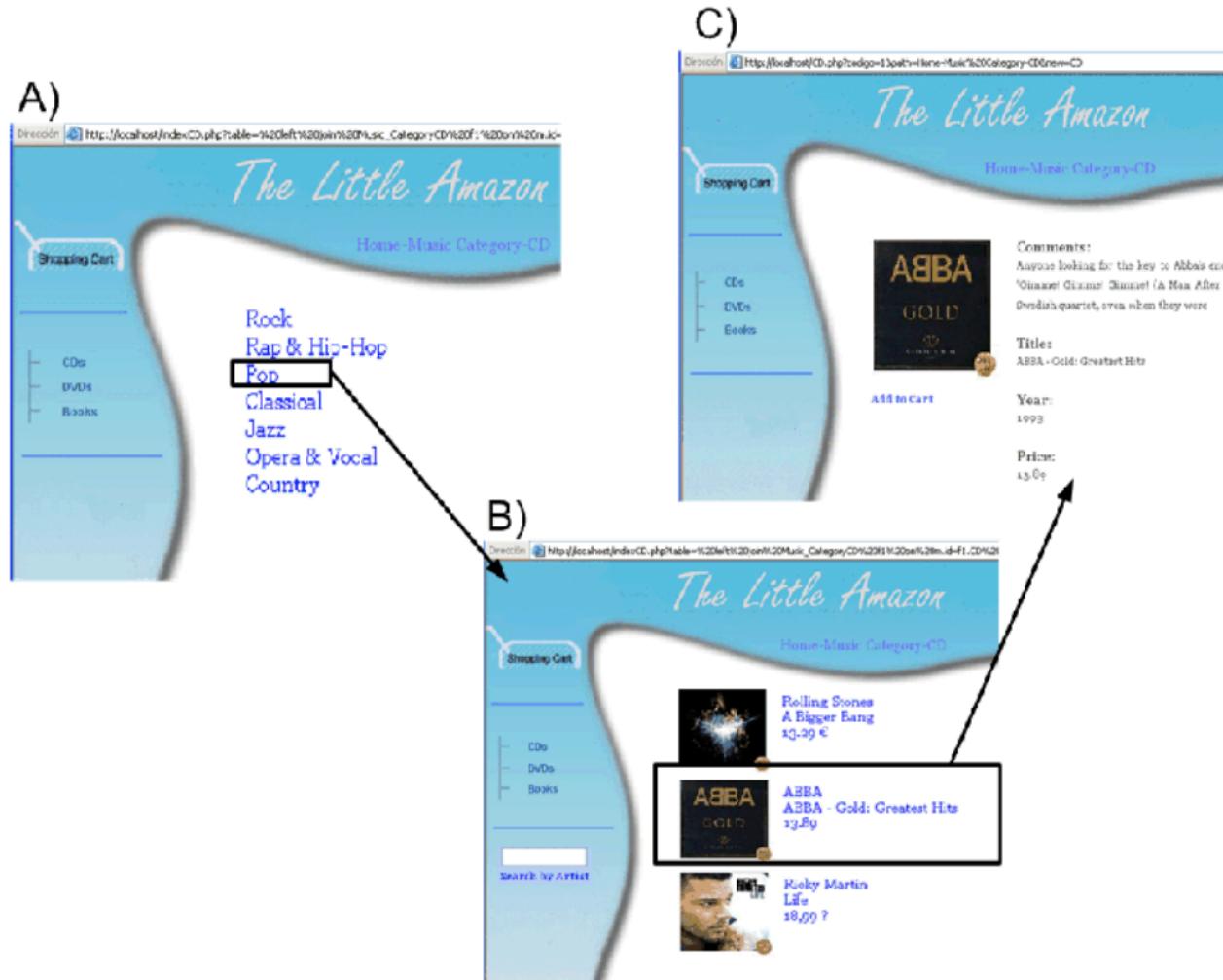


## Activity

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## Actions





**Figure 9: Navigational structure derived from activity analysis**

## Activity theory aims to address the following design issues:

### Major Metaphors and Analogies

Identify important metaphors and analogies used to enable the user to understand what a product does and how to use it.

### Concepts

Define the concepts that users are exposed to and that they need to understand, including the objects the concepts create and manipulate, any relevant attributes, and the operations that can be performed on the concept.

### Relationships and Actions

Identify the relationships between concepts, including whether an object contains another, or is part of it, and the relative importance of objects and actions.

### Mappings

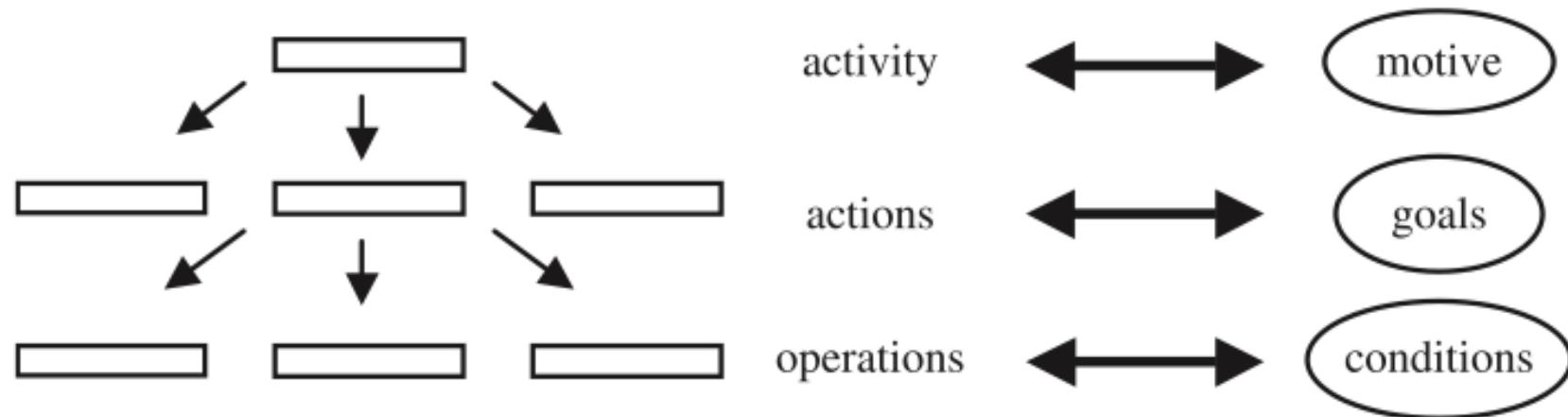
Define the mappings between the metaphors and concepts and the user experience the product is designed to invoke.

If you think about how your system will work in relation to these design issues, you will be more focused on how to implement your design in a way that is useful to the end-user.

1. **Voice of the user**— describe who is the user for your idea. Give details about them: what type of demographic do they fit in, what might be their **background**, and what **beliefs** or interests they might have. What type of problems or unmet **needs** are they having related to your exploration topic?
2. What type of data or evidence can you find to support your hypothesis that a **phenomenon** is happening? How are they currently solving or dealing with the issues your idea proposes to explore? What type of tools do they use, and how do they assist themselves regarding the topic? How does technology currently support them? Get videos, photos, or surveys **to illustrate the existing problem**.
3. Describe what type of **environment** your idea operates in e.g. virtual game, face-to-face, at work, at a party, etc. Try to describe the **scenario** where the user attempts to do something. What are the social norms in this environment? Be as detailed as possible. Are they in groups or alone when they encounter your topic?
4. **Dynamics of interaction**— Discuss the internal or external components of the actions users are engaging in. What types of activities can they perform in the ideal interaction? What type of actions do they perform that the technology does not support? Are there any latent needs that are not met by the current technology? List the steps they are performing.
5. **Operation**— In your ideal design, describe how the technology invites and responds to a user's actions? Diagram the input and outputs between the user and the current system. What are they seeing, hearing, sensing as they perform the action?
6. **Sketch and describe an idealized experience** explaining how a user might solve the problem using your proposed project. Walk us through a user scenario. Ask potential users what they think.
7. Use arrows to map the higher level ideas from steps 1-3 to step 4, and from step 4 to step 5 as the user engages in your ideal scenario.

[image from flickr](#)

# Activity theory template



The hierarchical structure of activity. Activities are composed of actions, which are, in turn, composed of operations (left). These three levels correspond, respectively, to the motive, goals, and conditions, as indicated by bidirectional arrows.

from: [The encyclopedia of Human Computer Interaction 2nd edition--Activity theory](#)

# Example- Mortgage payment website

## User Context



The Goal: College graduate paying off student loan debt.  
can easily understand what the remaining balance is  
doesn't want a lot of work to pay off debt  
doesn't want to accidentally miss a payment  
want to plan finances easily  
asks questions like "how many more payments do I have left?"  
have some control over how and when I pay things off

## Activity diagram

### Understanding personal debt

High Level		Manage and understand debt				
Middle Level	Pay off debt on website	Allow user to explore different payment rates		Alert when debt is due		
Low Level	Display debt amount	Enter payment amount	Transfer assets from bank to debt payment	Give indication of how many payments left at current payment rate	Show history of prior payments	Configure debt alerts

# Group homework: Activity Theory



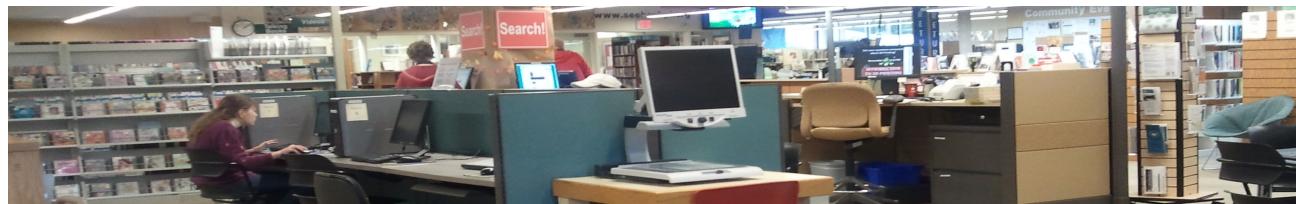
**In groups:** Create a few activity theory diagrams relating to your project.

What people are your users? How might they want to interact with your project, and what inputs and outputs they will be sensing (seeing, hearing, smelling)?

## Helpful Resources

- Video <https://www.youtube.com/watch?v=mb-3ufwK6U0>
- [Tutorial on Activity Theory](#)
- [ibeginners guide to interaction design](#)
- Canvas folder readings

Upload your activity theory diagrams to canvas, in addition to putting them in your presentation next week.



# Homework

for today

1

Activity Theory Diagrams and Group resources  
-- also fill out the peer reviews for today

<http://bit.ly/2m67lgk>

Due next week as part of presentation (but you can upload any time)

2

Peer Reviews # 2

<http://bit.ly/2nPeerReview>

# Summary of today

- Technical stuff- Processing IDE
- Your first media arts collaboration
  - Activity theory due Monday
- HW for tonight
  - Peer review reflection for group at the end of this weekend

Group work on Monday—

- Groups will show off their media repository and any decisions you've made