



Shelfie

Smart bookshelf assistant

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Information Systems - Party of Six



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Yakir

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Haller

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Coordinator



Amir

Sackran

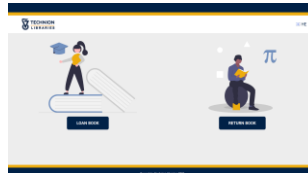
IT Infrastructure Manager

IGeLU presentations

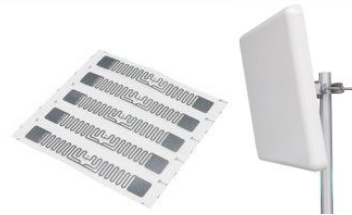
LIBstick – cloud printing service



Self loan kiosk



Library security system - RF



2018
Prague
Czech



2019
Singapore



2020
Zoom



2022
Cardiff
Wales



2023
Leuven
Belgium





- 1912 founded
- 18 faculties
- 14,000 students
- 570 faculty members
- 4 Nobel prize winners



Requirements gathering



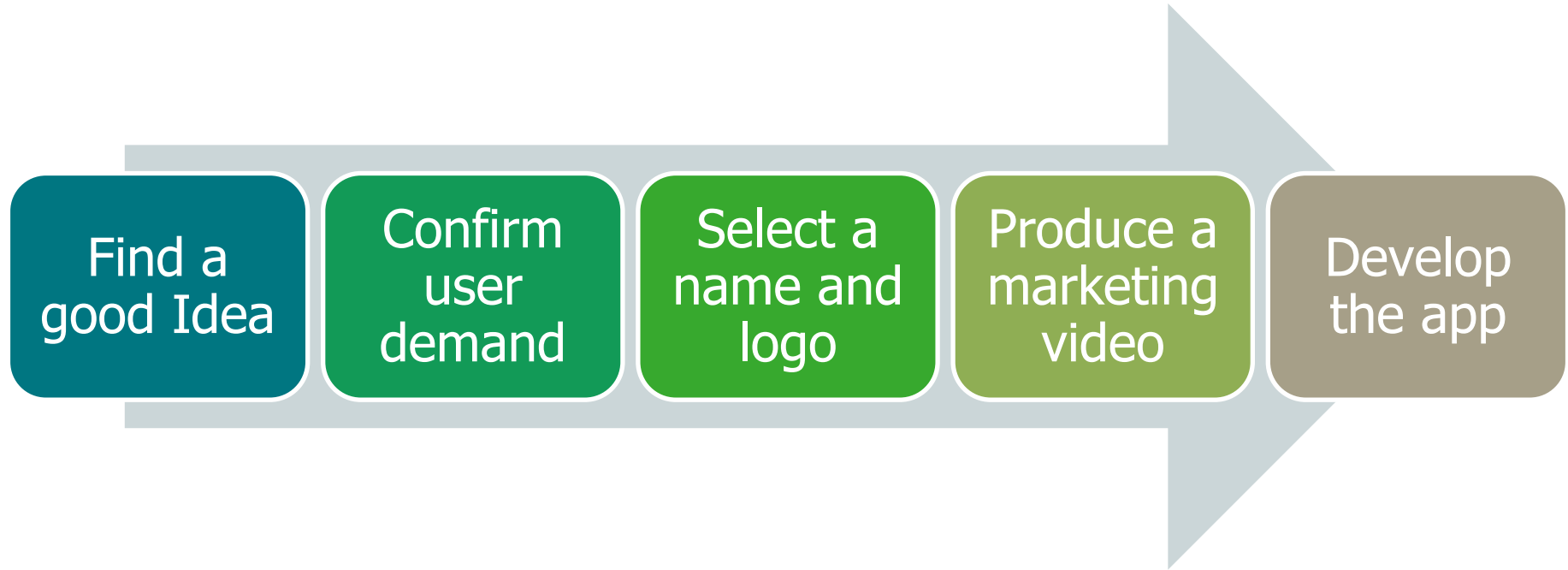
- Changing Work Habits
 - Shift from searching to direct questioning
 - AI anticipating and completing thoughts
- New AI Project Launched
 - Improve our working tools
 - Learn to incorporate AI services into our solutions

"AI isn't just changing our tools; it's reshaping how we think and work."



What are the steps to build a library app?

(Using AI 😊)



Simple prompt



write 10 inovative library app ideas



Here are 10 innovative library app ideas that could enhance the library experience for users:

1. **Book Recommender with AI:** An app that uses AI to recommend books based on users' reading history, preferences, and current mood. The app could also analyze a user's social media activity (with permission) to tailor suggestions.
2. **Augmented Reality (AR) Book Explorer:** An app that uses AR to enhance physical books with interactive elements like 3D models, videos, and quizzes. Users can scan a book cover or page to unlock these features, adding an educational and engaging layer to reading.
3. **Virtual Library Tours and Events:** A VR or AR app that offers virtual tours of the library, including historical sections, rare book rooms, and special exhibits. It could also host virtual events, author talks, and workshops that users can attend from anywhere.
4. **BookSwap Community Hub:** A platform within the app that facilitates book exchanges between library users. It could include features like setting up meetups, tracking book loans, and reviewing swapped books, fostering a community around shared reading.

App idea

- ▶ Use cell phone to take a photo of a bookshelf
- ▶ Analyze the call numbers in the photo
- ▶ Enrich the information from Alma catalog
- ▶ Alert for any misalignment



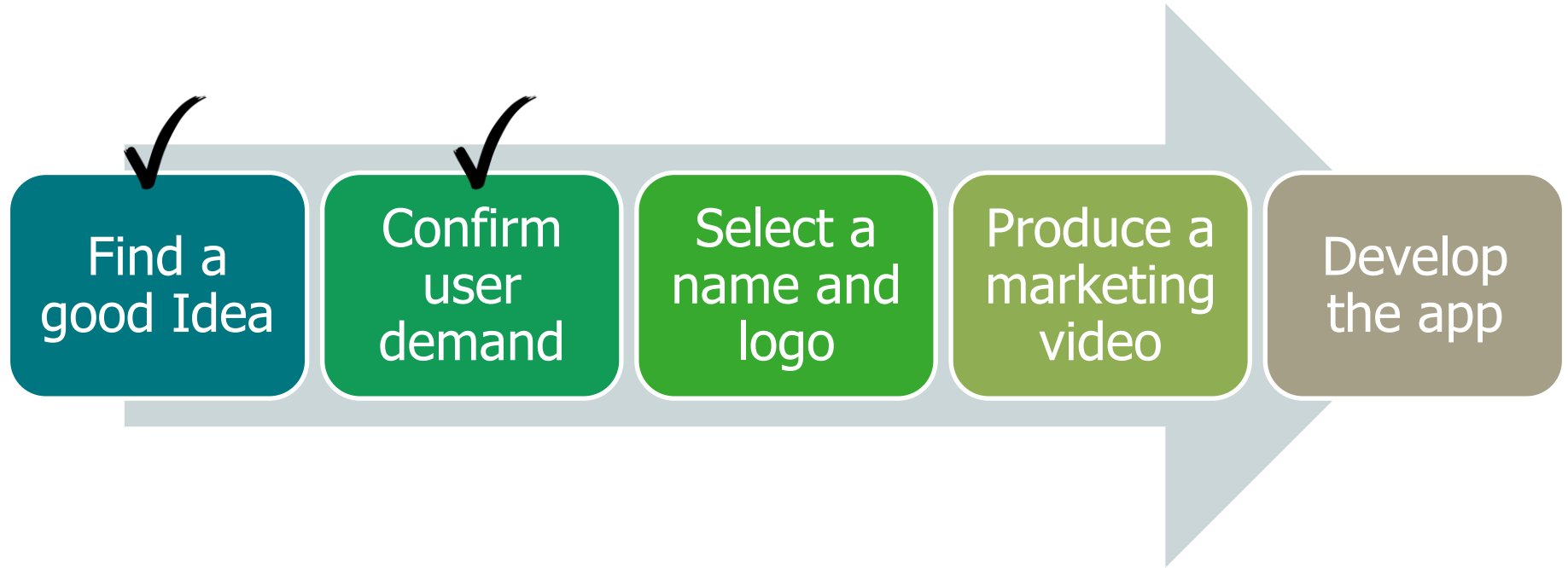
Confirm user demand

- ▶ Manual procedure with no automatic tools
- ▶ Difficult to identify misalignment
- ▶ Basic confirmation
- ▶ Start with technical proof of concept



What are the steps to build a library app?

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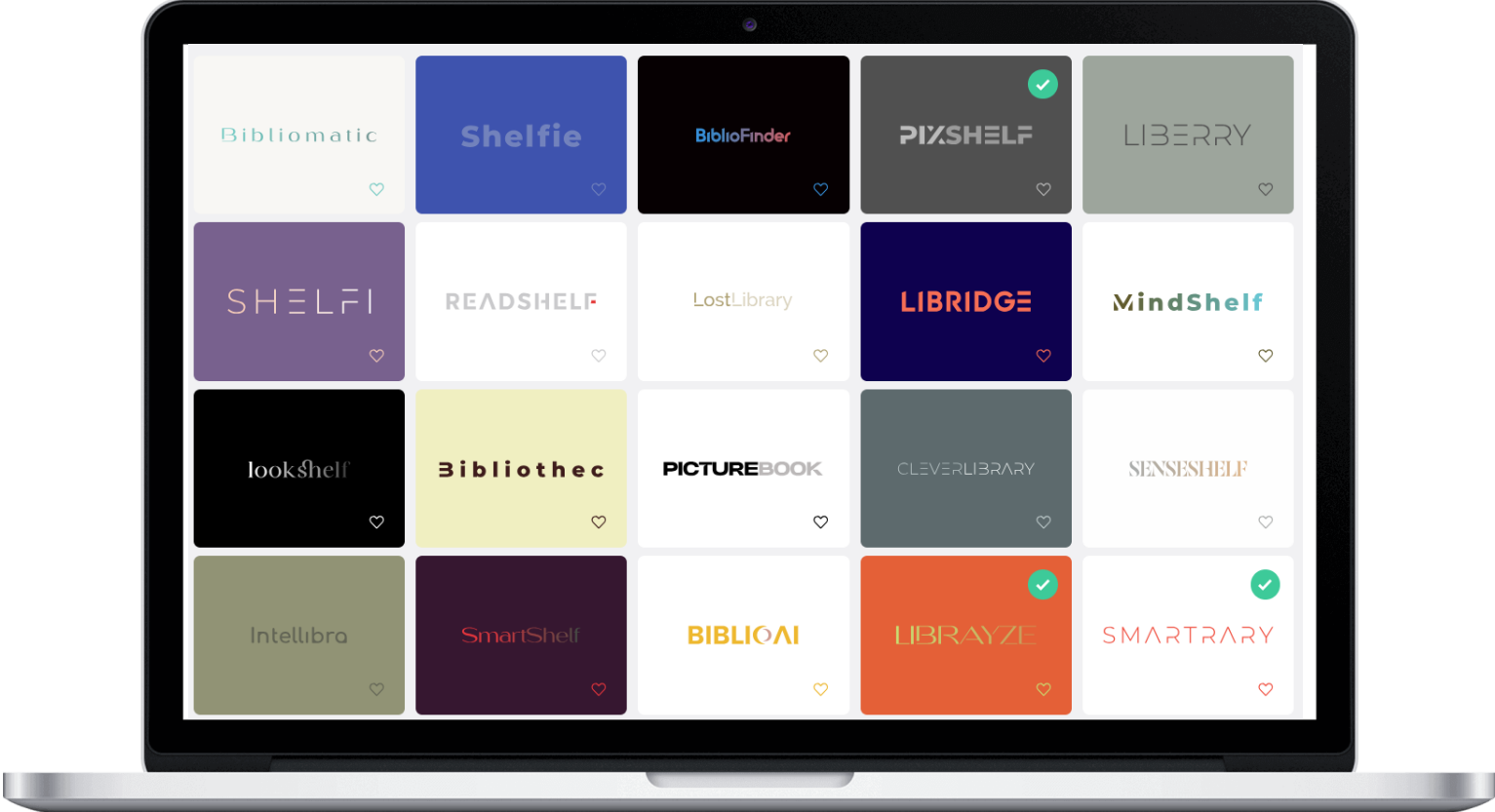


All AI tools



<https://namelix.com>

AI name & logo generator

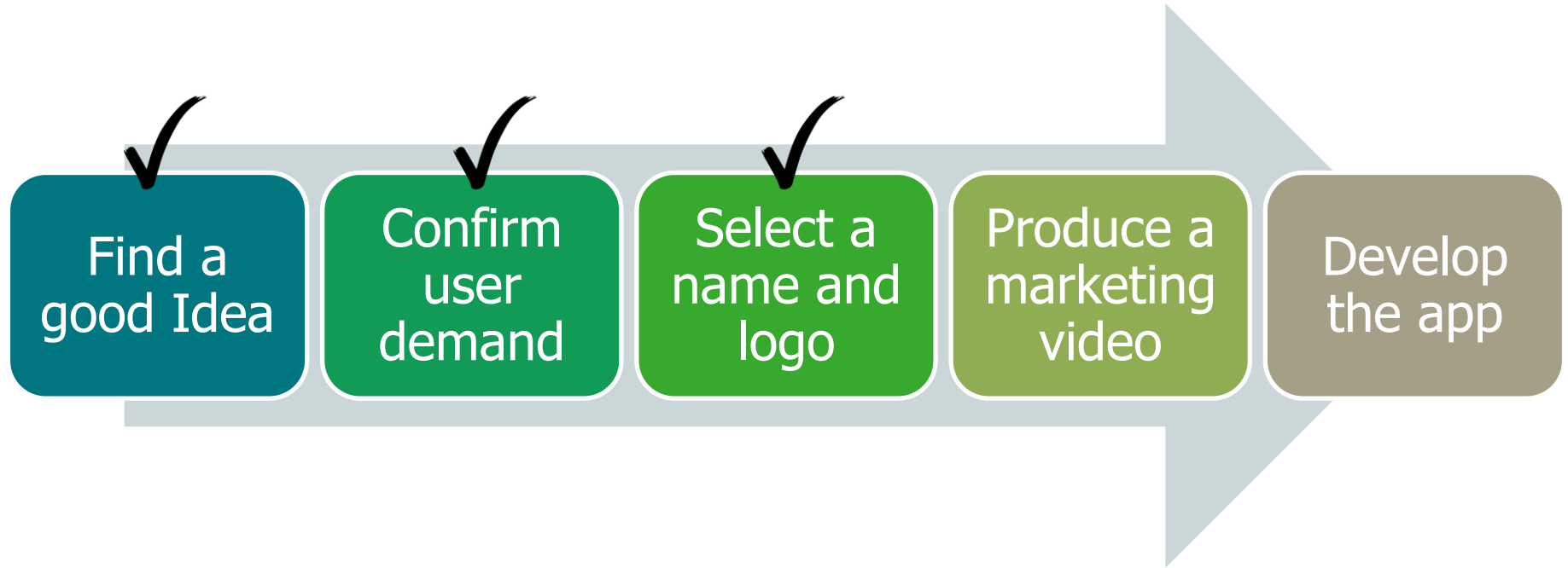


shelfie

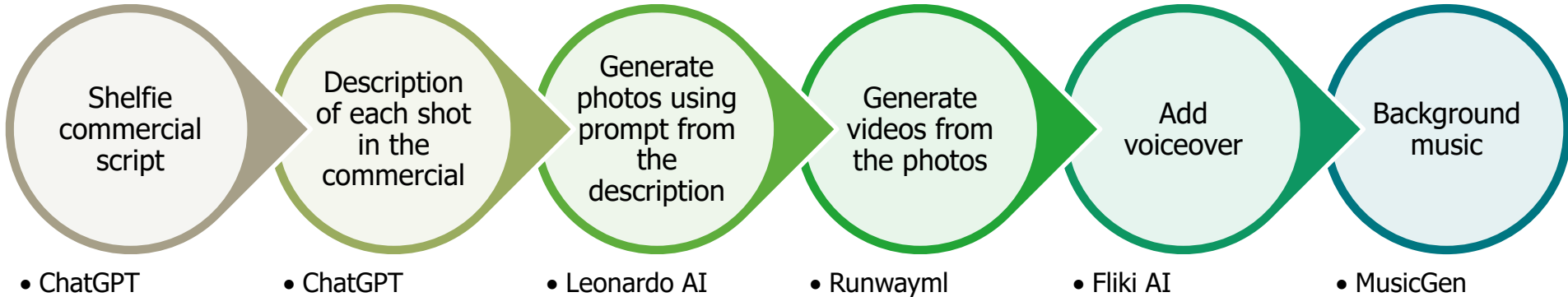
smart bookshelf assistant

What are the steps to build a library app?

(Using AI 😊)

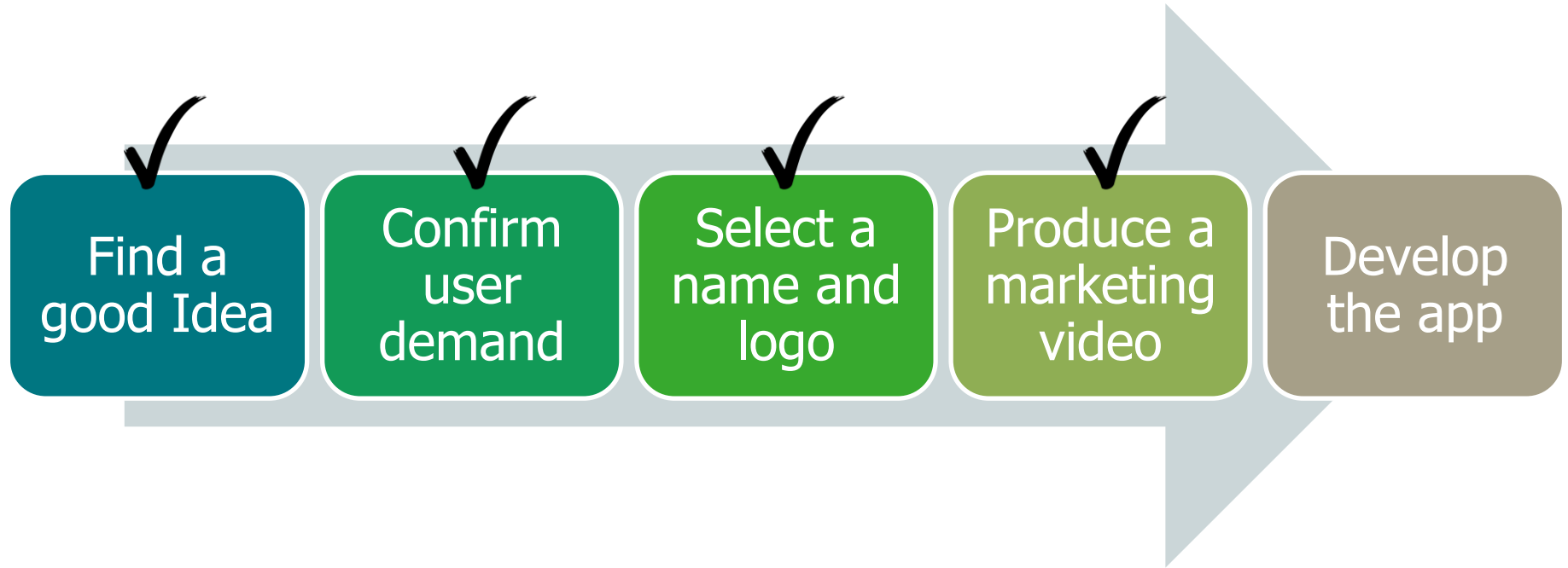


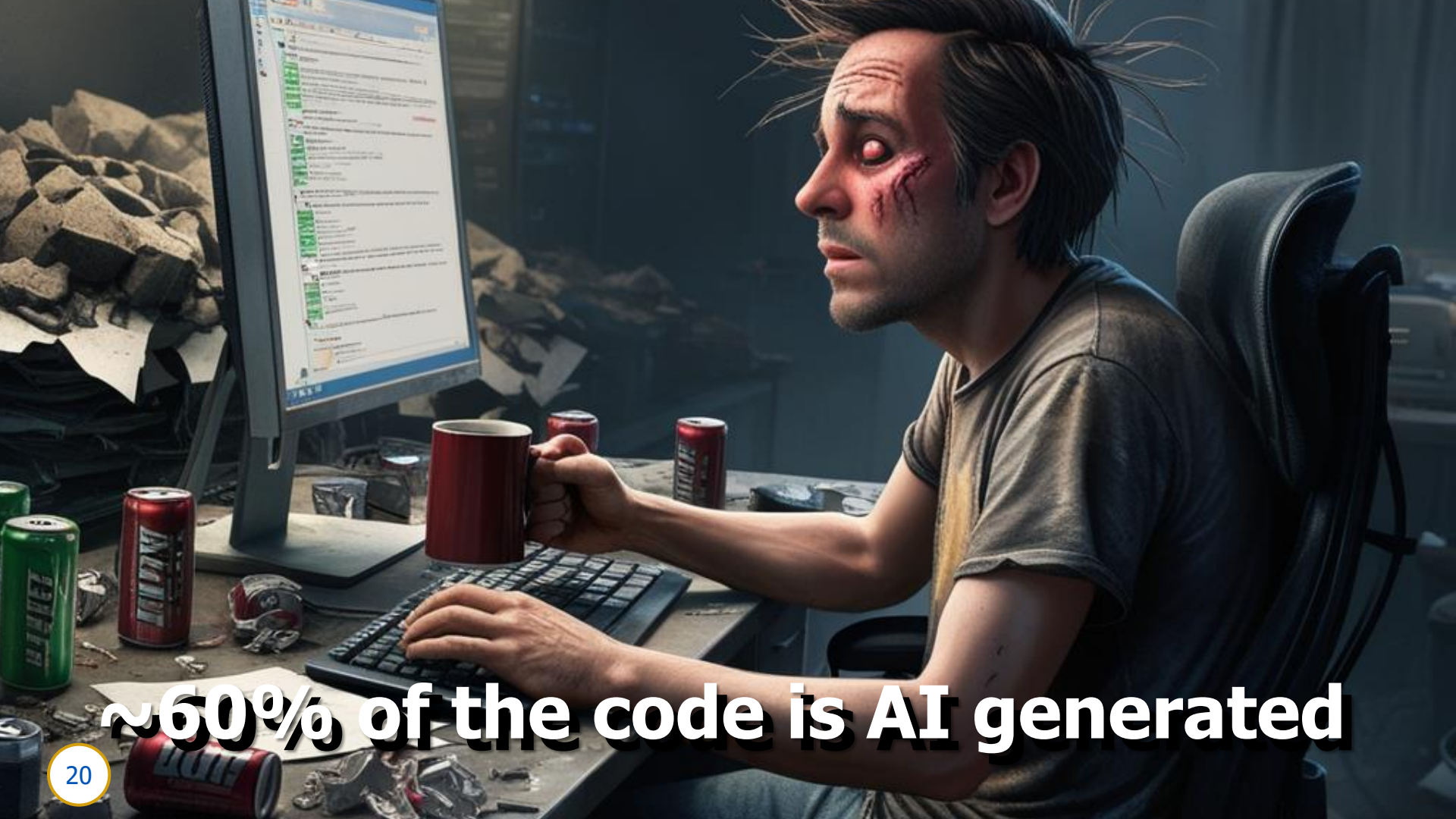
Commercial video using AI



What are the steps to build a library app?

(Using AI 😊)





~60% of the code is AI generated

Generate code

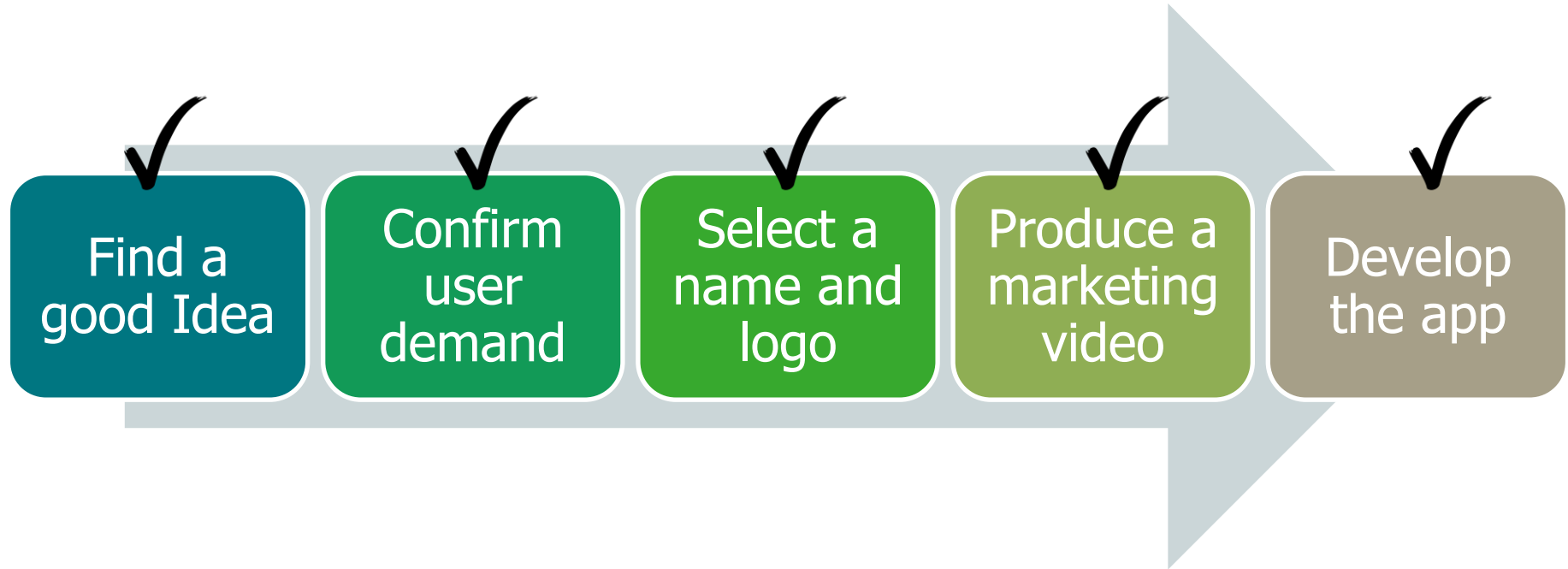
The screenshot shows the JETBRAINS Marketplace interface. At the top, there are navigation links for 'Edu Courses', 'Themes', and 'Plugin'. The main header features the 'Amazon Q' logo, a 4-star rating, and the text 'Amazon Web Services'. Below this, there are tabs for 'Overview', 'Versions', and 'Reviews'. The main content area describes Amazon Q as a 'generative AI-powered assistant across the software development lifecycle' and highlights 'Inline code suggestions' with the text 'Code faster with inline code suggestions as you type.' A code editor window is shown with the following Java code:

```
36
37 // Create method to create a new customer
38 @RequestMapping(method = RequestMethod.POST) @-
39 @ResponseStatus(HttpStatus.CREATED)
40 public @ResponseBody Customer createCustomer(@RequestBody Customer customer) {
41     return customerRepository.save(customer);
42 }
43
44 // Method to update customer
45 @RequestMapping(value = @"/{id}", method = RequestMethod.PUT)
46 @ResponseStatus(HttpStatus.OK)
47 public @ResponseBody Customer updateCustomer(@PathVariable("id") Long id, @RequestBody Customer customer) {
48     customer.setId(id);
49     return customerRepository.save(customer);
50 }
```

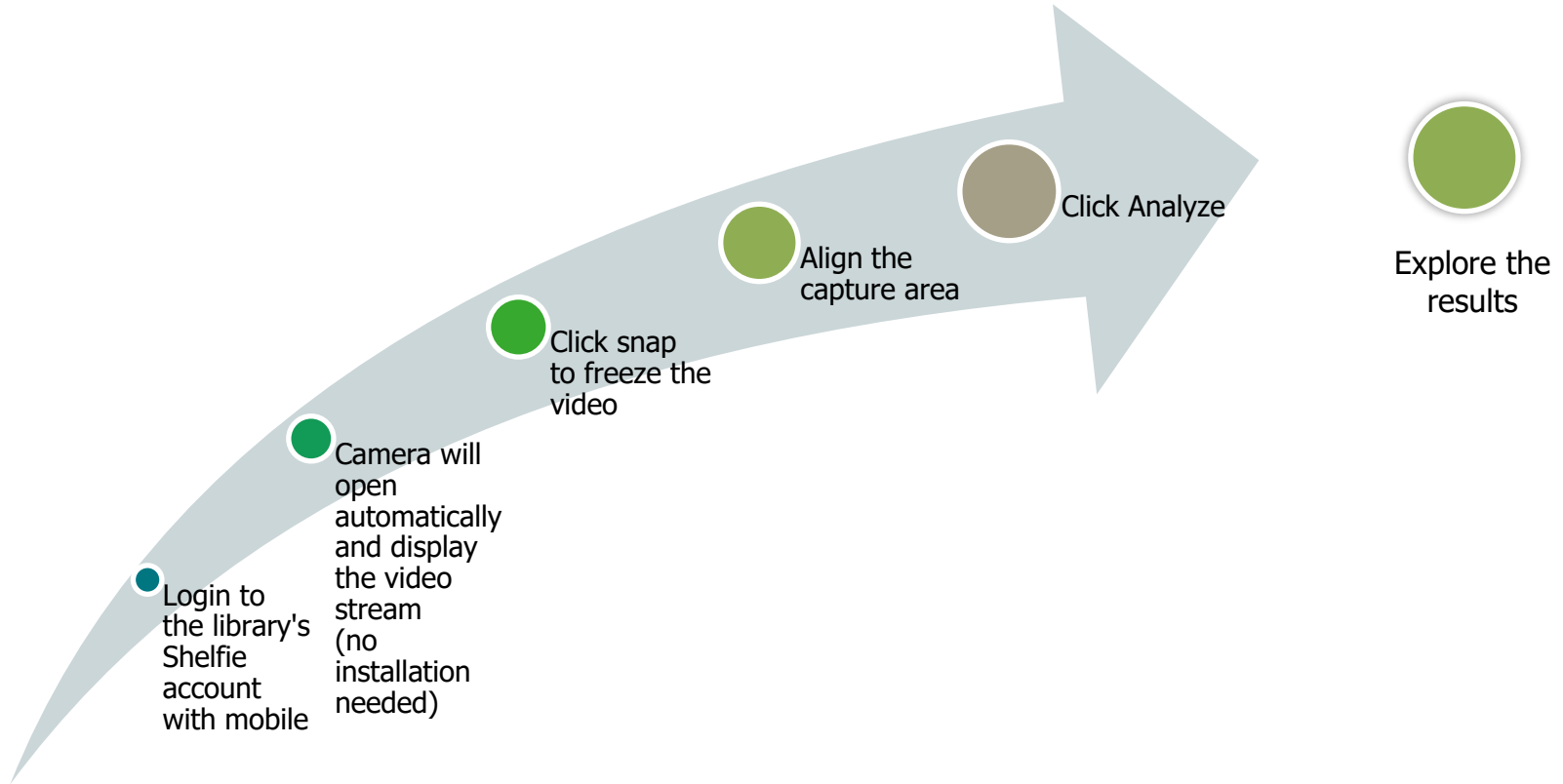
The screenshot shows the Azure AI Studio interface. The top navigation bar includes 'Azure AI Studio', 'Resources and keys', and the user profile 'technion-library-is-team'. The main area is titled 'Chat playground' and features a 'Start chat' button with a chat icon and the text 'Test your assistant'. On the left sidebar, there are navigation options: 'Overview', 'Get started' (with sub-items: Model catalog, Model benchmarks, Prompt catalog, AI Services), 'Playgrounds' (with 'Chat' selected), 'Assistants' (marked as 'PREVIEW'), and 'Images'. The top right of the chat area shows 'Your current Azure AI Studio experience is running on' and buttons for 'Export', 'View Code', and 'Pro'.

What are the steps to build a library app?

(Using AI 😊)

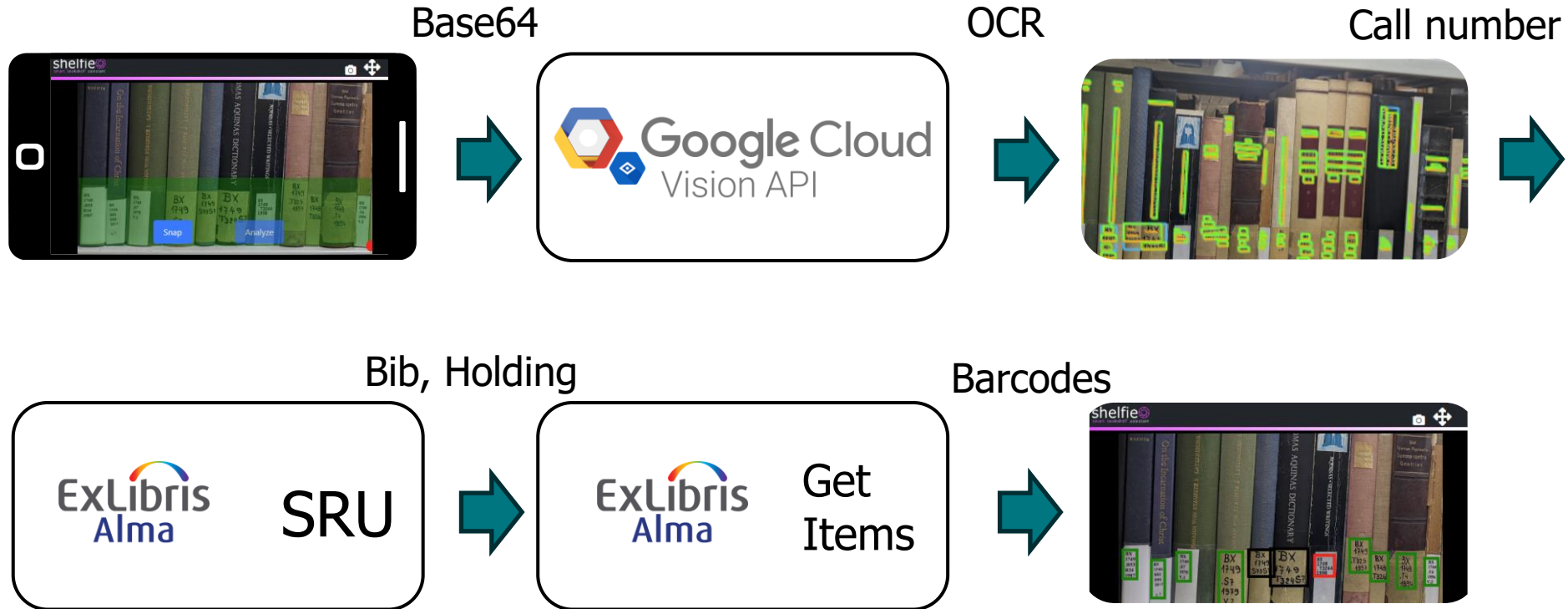


How it works? User experience





How it works? Behind the scenes



How to read the results?

- Call number detected

Black



- Misalignment detected

Red



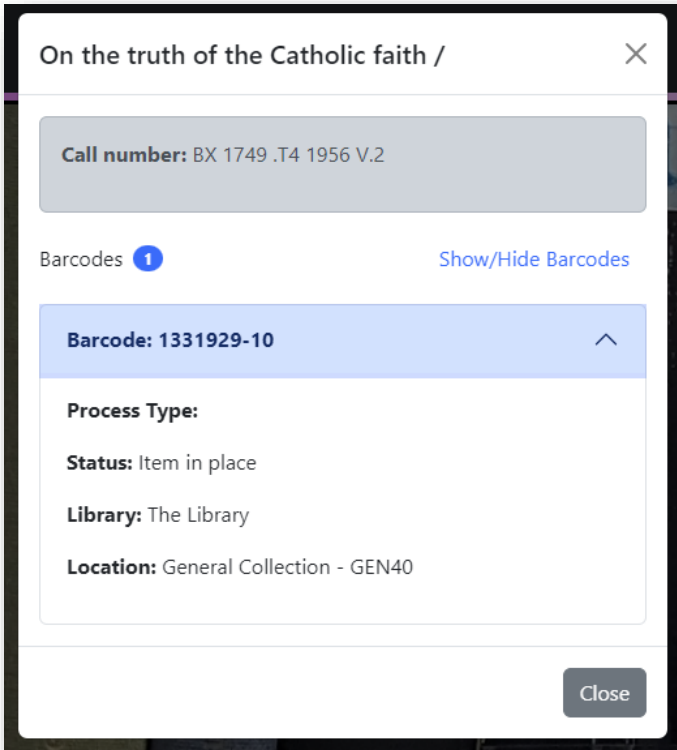
- Found in Alma, no missalignment detected

Green



Results - **green** rectangle

- ▶ The title of the book
- ▶ The call number
- ▶ List of all the related items:
 - Process type
 - Status
 - Library
 - Location



On the truth of the Catholic faith / ✕

Call number: BX 1749 .T4 1956 V.2

Barcodes 1 [Show/Hide Barcodes](#)

Barcode: 1331929-10 ^

Process Type:

Status: Item in place

Library: The Library

Location: General Collection - GEN40

Close

Results - **red** rectangle



- ▶ Unsorted – books on the shelf are not organized in the right order.
- ▶ Inconsistency – book found on the shelf but the status in Alma is not: 'Item in place'
- ▶ Missing – expected more items of this bib on the shelf

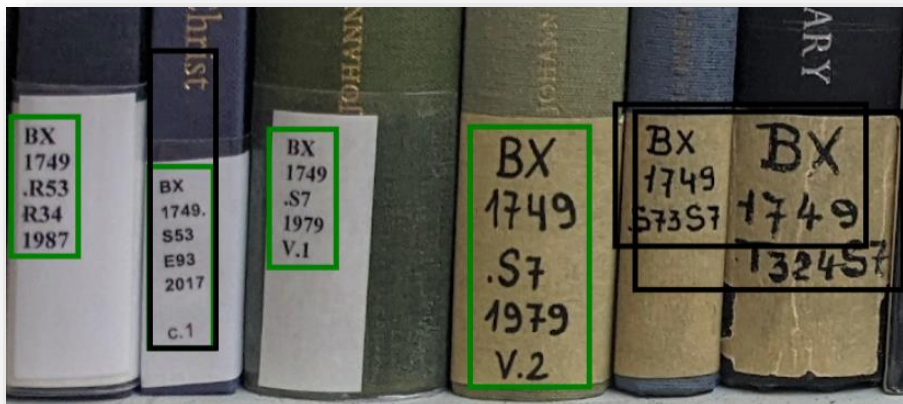
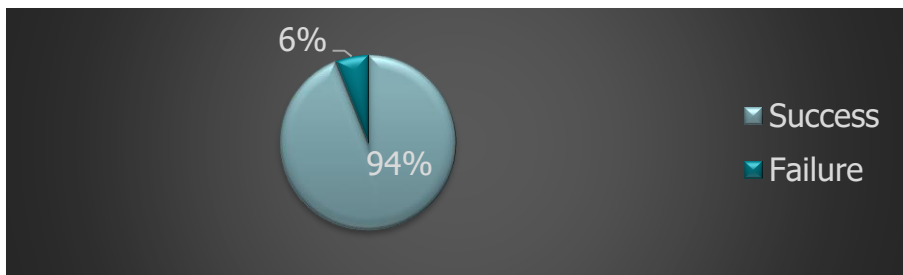
The screenshot shows a window titled "Selected writings /" with a close button (X) in the top right corner. A red rectangular box highlights the text "Unsorted: line 3 'T3244' with 'T32457'". Below this, a grey box displays the "Call number: BX 1749 .T3244 1998". A section for "Barcodes" shows a count of 1 and a "Show/Hide Barcodes" link. A blue box highlights the "Barcode: 100014741590" with an upward arrow. Below this, the "Process Type:" section lists "Status: Item in place", "Library: The Library", and "Location: General Collection - GEN40". A "Close" button is located in the bottom right corner of the window.



Current success ratio ?

76%

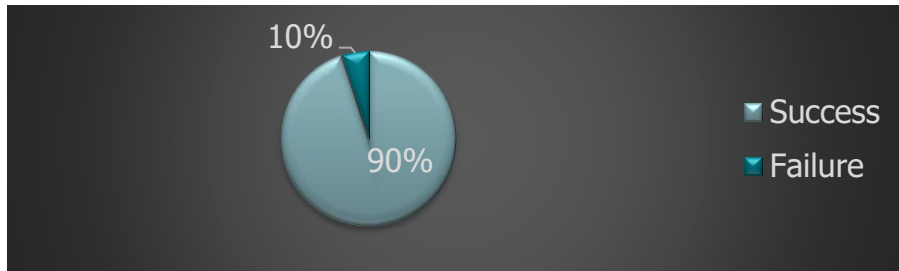
Success ratio – label recognition



Ideas to improve

- ▶ Train a model or use OpenCV to identify the book borders
- ▶ Start the label building from the bottom

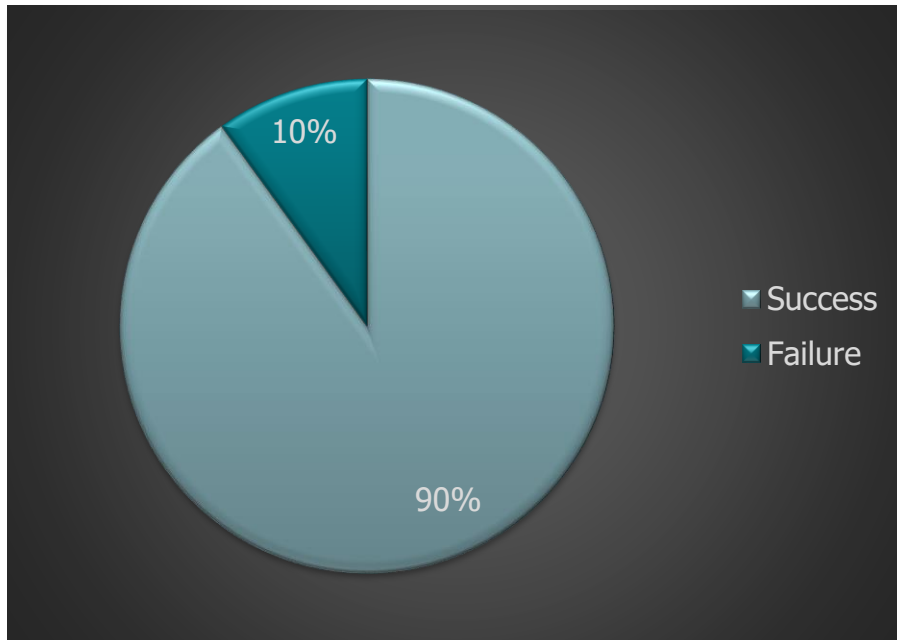
Success ratio – text detection



Ideas to improve

- ▶ According to Library of Congress classification, replace digits with letters

Success ratio – catalog search



Ideas to improve

- ▶ Ex-libris to expose a simpler search API (Application Programming Interface)
- ▶ Eliminate spaces and dots

Next steps as mobile app

- ▶ Improved accuracy
- ▶ Option to share the results or view online
- ▶ Improved UX



Next steps as a service

- ▶ Analyze video
- ▶ Automatic recording via UV (Unmanned vehicles)



Shelfie focus group



Objectives:

- ▶ Test the app and provide feedback
- ▶ Specify requirements



Joining form



Thank you!
Questions?
Feedbacks?

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Live Demo

