

Is Your Library Ready to Code?

Michigan Library Association
Spring Institute

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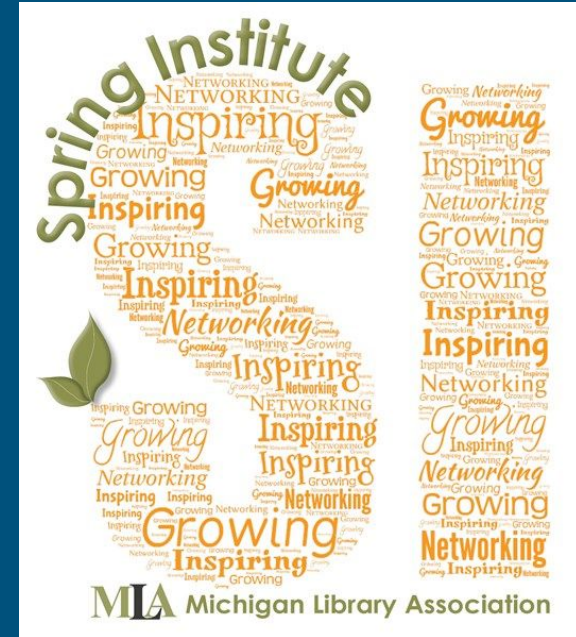
Project Partners: Connor McNamara, Thom Mackie, and Michigan
State University Computer Science Department

Introductions

Have you done coding programs in your library?

Are you planning to do coding programs in your library?

If you're not sure about doing them, what's holding you back?

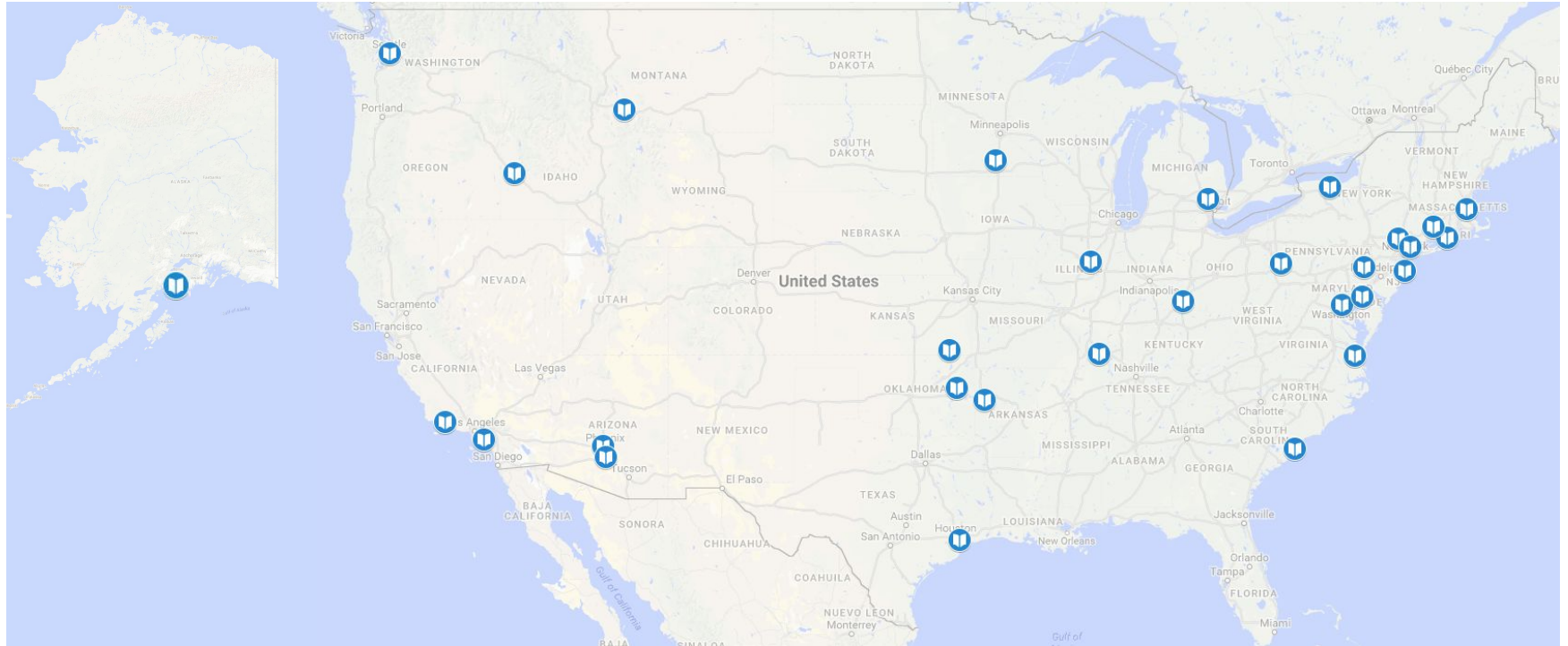


What is Libraries Ready to Code?

Three Phases so Far

- **Environmental Scan:** Research to understand the lay of the land of libraries and coding
- **Pre-Service:** Working with faculty in library & information science programs to revise syllabi & integrate computational thinking literacies
- **In-Service:** 27 libraries across US funded to design & implement RtC activities

Now Working with In-service Library Staff



RtC Concepts

Ready to Code programs facilitate computational thinking by:

- Providing & creating inclusive learning environments
- Connecting to youth interests and emphasizing youth voice
- Engaging with communities
- Engaging with families
- Demonstrating impact through outcomes

Goals of Work of the Cohort

1. Build a cohort of library leaders that have the mindset, experience, and dedication to integrate RtC concepts into youth services
2. Implement CS / CT programs and activities, test resources, and provide specific insights
3. Develop an end product that every youth serving library in the U.S. finds valuable - regardless of resources or expertise



Follow our upcoming work at www.ala.org/tools/readytocode

Why Ready to Code?



LIBRARIES READY TO CODE NEED

FUNDING



- **Builds** technology infrastructure ensuring digital equity among youth
- **Extends** library capacity to connect youth to college and career pathways
- **Enables** research on the learning needs of youth for data-driven outcomes

EXPERTISE Through Partnerships



- **Assists** youth in acquiring computational thinking skills through coding
- **Expands** equitable access to youth from diverse backgrounds to explore computer science opportunities
- **Models** career pathways and widens youth perceptions of a successful future
- **Increases** library impact in the community

PROFESSIONAL DEVELOPMENT



- **Ensures** library staff can design youth programs that develop computational thinking among youth
- **Equips** library staff with skills essential to champion the learning needs of youth successfully
- **Empowers** library staff to solidify their role as informal learning partner and champion in the community

DATA



- **Drives** library youth initiatives that expedite local, state, and regional economic vitality
- **Stimulates** robust partnerships that deepen formal and informal learning programs for youth
- **Secures** the ongoing impact of informal learning experiences on youth and their communities
- **Supports** sustainable community development projects that address community challenges and goals

Grant Writing

ALAnews

ALA Announces \$500,000 in First-time Grants to Develop Coding Programs in Libraries

- One month to get it all put together
- Iterative process- changed our minds about 50 times
- Outside of the library support
- Getting our supervisors on board
- Be honest about what you can accomplish
- Ask the most critical person in your office
- Revise early, and often!
- Send it to someone with absolutely no idea what you're doing

Marketing

Quick turnaround

Combined idea with staff
brainstorming

Marketing coordinator worked
with graphic designer

Binary code!



What did we learn?

- It's possible to market a brand new program in less than 2 weeks, but not preferable.
- You'll find people in unlikely places
- Recruit help from the school district-they have a much bigger following!

Registration form:

<https://goo.gl/forms/XyFdXnfkEsSNPd882>

A graphic with a purple background featuring a pattern of white binary code (0s and 1s). The text "CREATIVE CODING ADVENTURES" is overlaid in white and yellow. "CREATIVE" and "ADVENTURES" are in white, while "CODING" is in yellow.

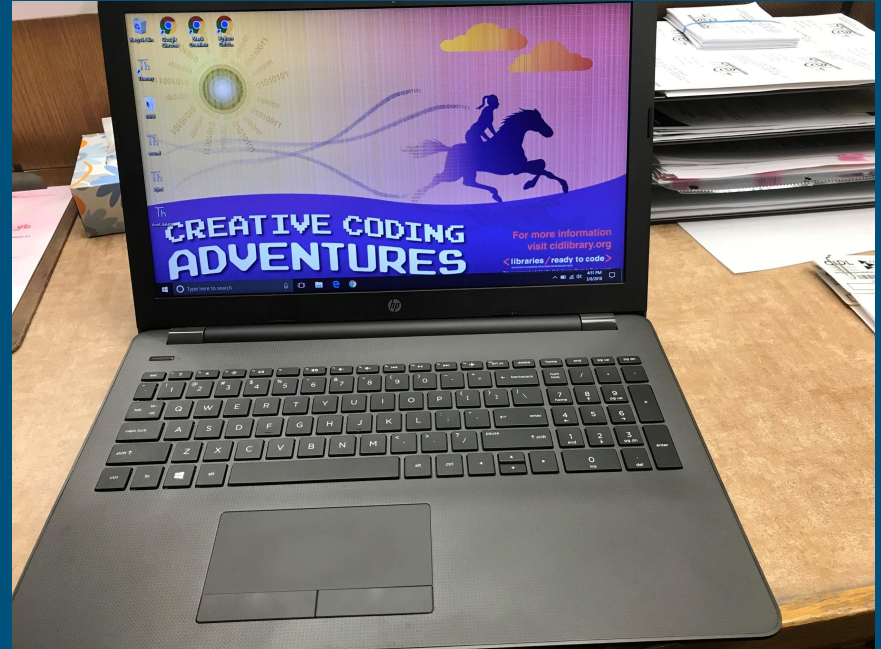
CREATIVE
CODING
ADVENTURES

Video!



Materials

- Laptops
- White Boards & Markers
- Paper & Pens
- Syntax Cards
- USB drive
- Snacks! Try to find ones that won't crumb or get the computers sticky



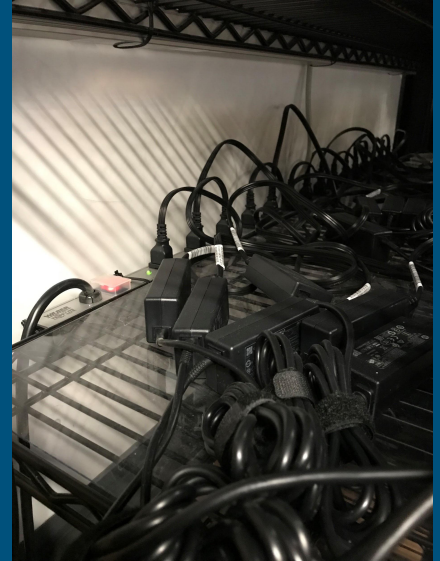
How did we make it happen?

Group effort

Charging station

Last minute laminating

Ek Tools sticky tape

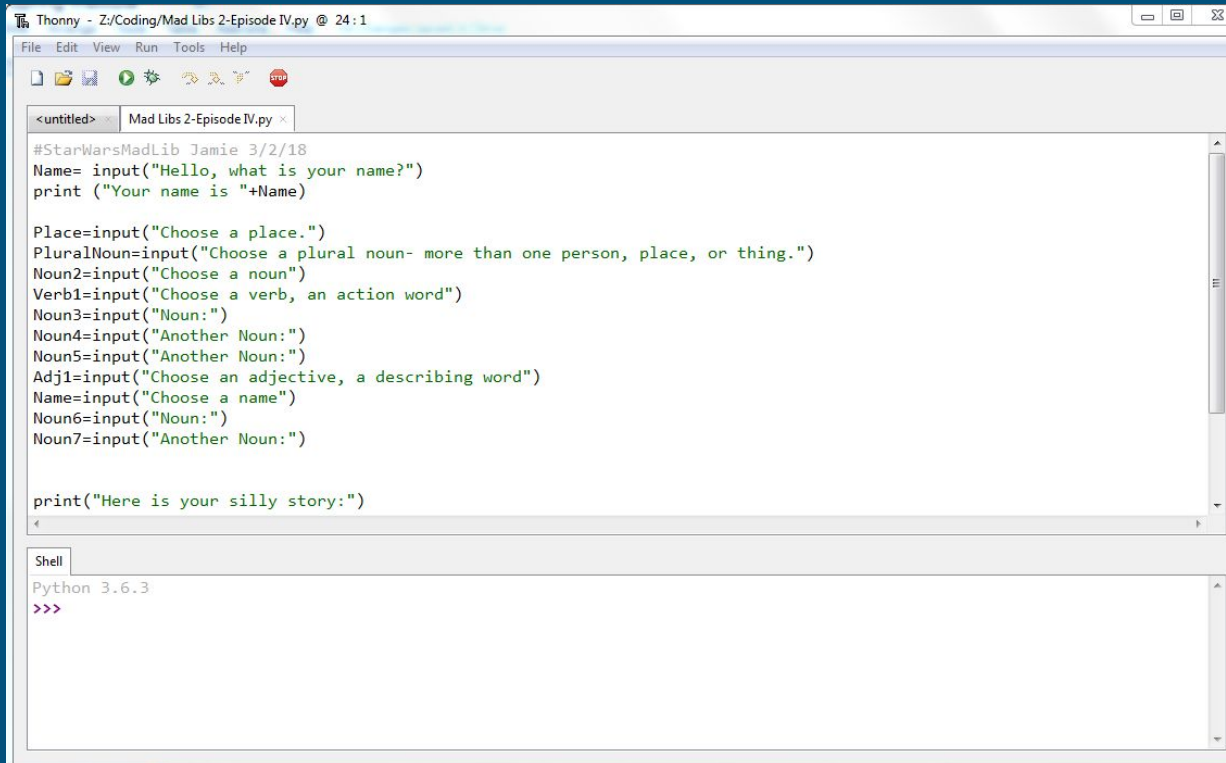


What did we learn?

- Have a cart with all of your things to make transportation easier
- Reserve space early and often!
- Expect to start late if right after school
- Remember that you're working around not only a library schedule, but different school districts, siblings, and other chaos to get kids at the library regularly



Let's Play A Game: Mad Libs



The image shows a screenshot of the Thonny Python IDE. The window title is "Thonny - Z:/Coding/Mad Libs 2-Episode IV.py @ 24:1". The menu bar includes "File", "Edit", "View", "Run", "Tools", and "Help". The main editor area contains the following Python code:

```
#StarWarsMadLib Jamie 3/2/18
Name= input("Hello, what is your name?")
print ("Your name is "+Name)

Place=input("Choose a place.")
PluralNoun=input("Choose a plural noun- more than one person, place, or thing.")
Noun2=input("Choose a noun")
Verb1=input("Choose a verb, an action word")
Noun3=input("Noun:")
Noun4=input("Another Noun:")
Noun5=input("Another Noun:")
Adj1=input("Choose an adjective, a describing word")
Name=input("Choose a name")
Noun6=input("Noun:")
Noun7=input("Another Noun:")

print("Here is your silly story:")
```

Below the editor is a "Shell" terminal window showing the Python 3.6.3 prompt and the start of an interactive session:

```
Python 3.6.3
>>>
```

What Did a Session Look Like?

Instructor's Manual

Staff were provided with the instructor's manual, which helped them understand the coding concepts before the day of the program.

Full Group Instruction

The IT assistant provided full group instruction using a projector based on the concepts presented in the manual.

Syntax Cards

Participants were given Syntax cards as a reminder of the concepts presented.

Individual Worktime

Participants were given time to work on the challenge of the day or to work on their adventure games.

What did we learn?

- Some Elementary School children are still using single finger type. This hinders their ability to take notes on the computer and create text based games.
- Children/Teens are not able to pay attention to whole group instruction for longer than an hour.
- It was difficult for participants to understand concepts when they are not given a context that matters to them.
- When creating games, some participants think too small

Decision

“I want to check if one condition OR another is true”
“I want to check if one condition AND another is true”

```
if(variable == True or otherVar == True):  
    code
```

```
if(variable == True and otherVar == True):  
    code
```

Staff Participation and Volunteers

IT Assistant

- Created instructor's manual
- Presented full group instruction
- Answered questions as needed

Other Librarians (Childrens, Teen, Adult)

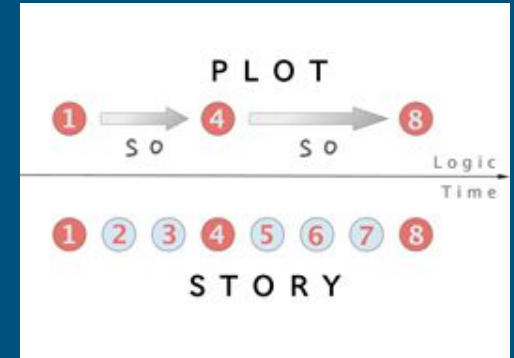
- Assisted with room setup
- Answered questions as needed
- Helped with slow typers

MSU Student Volunteer High School Coding Volunteers

- Helped in checking the code for the manual
- Answered questions as needed
- Provided assistance as needed
- Assisted participant with visual impairment

How are we taking what we learned to make it better?

- Focusing on Middle School/High School students rather than Elementary School
- Shortening whole group instruction and adding in small group instruction
- Teaching concepts in the context of smaller games
- Not starting to work on the adventure game until most of the learning has been done
- Helping kids develop a storyline before starting to work on the adventure game.



Spring Workshop Plans

Focus on games:

- Mad Libs
- Number Guessing Games
- Hangman
- Adventure Game

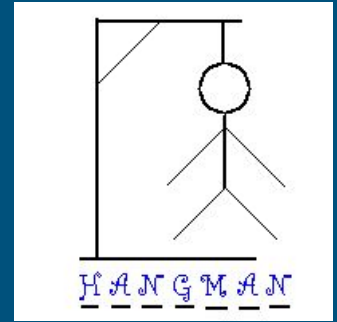
Different Format:

~Warmup

~1 hr Whole Group Instruction

~.5 hr Small Group Coding

~.5 hr Story Planning/ Individual Worktime



**Use a different IDE (Integrated Development Environment)?
PyCharm vs Thonny**

Questions?



Contact Us and Thanks!

Further questions?

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Thank you for coming!

Special thanks to:

Clarkston Independence District Library

Connor McNamara

Thomas Mackie

Michigan State University Computer Science

Department

American Library Association

Google

Further Resources

ALA Libraries Ready to Code site <http://www.ala.org/tools/readytocode>

Google Drive Link to our materials:

https://drive.google.com/open?id=16ryHsTh8pog5vCAAUPgsjn_IB4MO-V0g