

# AICODE101 STEM PROGRAMS

AI CODE ACADEMY  
(FORMERLY DELAWARE STEAM ACADEMY)

PROJECT BASED LEARNING

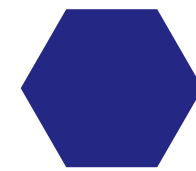




# PROJECT-BASED LEARNING



Students achieve through obtainable accomplishments



A fun atmosphere where students are motivated to succeed



Students build strong portfolios to showcase their work



**Devoted staff and instructors** who put students first

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Builds an inclusive academic environment where **students of all genders can succeed** in STEM and computer science

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**Exclusive AI teaching platform** designed to empower students of all skill levels to use machine learning

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We've taught over **7500 learners since 2019 all over the world**, setting the bar globally in computer science education for young students

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Receiving overwhelmingly positive feedback, we've earned a **4.66/5 star customer review rating**

# WHY AI CODE ACADEMY?

## ACCESS TO HARDWARE:

- BBC Microbit
- Raspberry Pi
- Smart Car
- Smart Dog

## ACCESS TO AI SOFTWARE:

- **Image recognition**
- **Sound recognition**
- **Statistical regression**
- **Text classification**

## ACCESS TO INSTRUCTORS:

Experienced  
Computer Science  
instructors who  
are Computer  
Science graduates  
and have taken  
this pathway as a  
career

**Our programs involve students at every step of the machine learning process.**



# OUR MACHINE LEARNING PLATFORM

Data-Based Machine Learning Models Made in Four Steps

1



Create Labels  
& Samples

2



Train Your  
Model

3

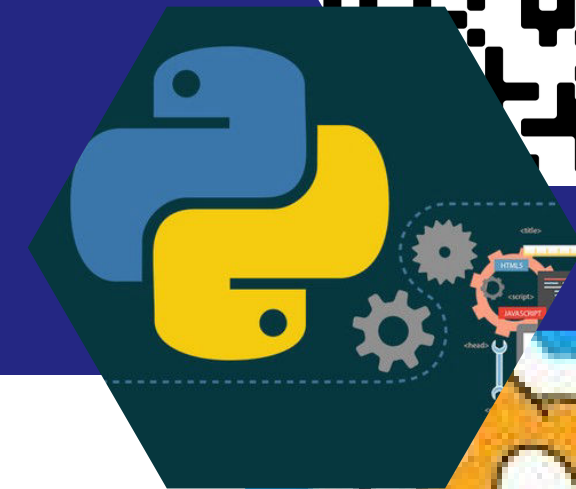


Test Your  
Training

4



Apply Your  
Model



Easy & Fun

[www.aicode101.com](http://www.aicode101.com)

- Text, Image and Sound Recognition
- Number projects with decision trees
- Multiple Output Environments
  - **Scratch**
  - **Python**
  - **Smart Devices (QR Code)**

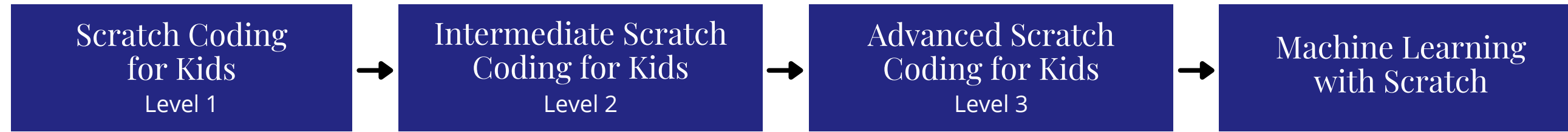




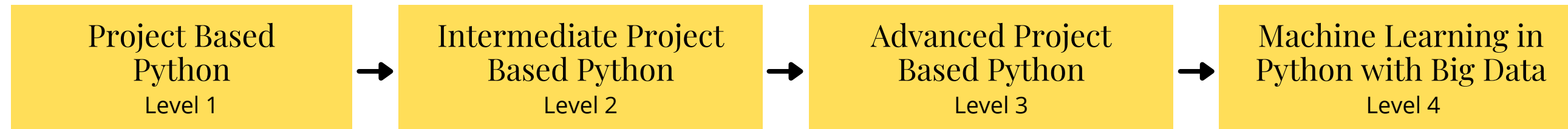


# POSSIBLE PATHWAYS

**GRADES**  
**2 - 6**



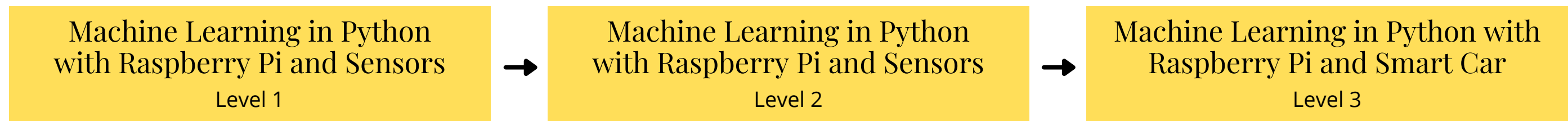
**GRADES**  
**4 - 8**



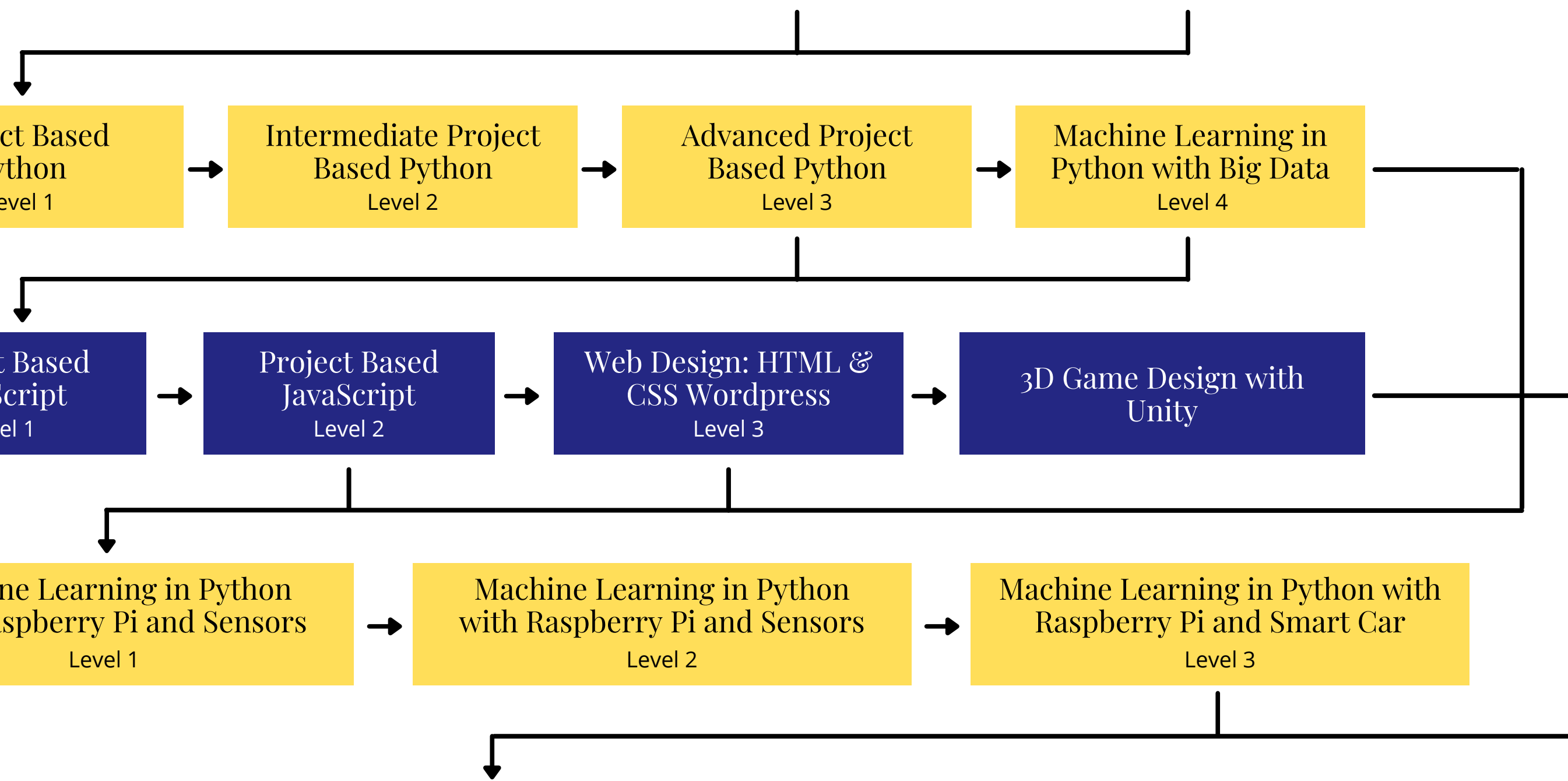
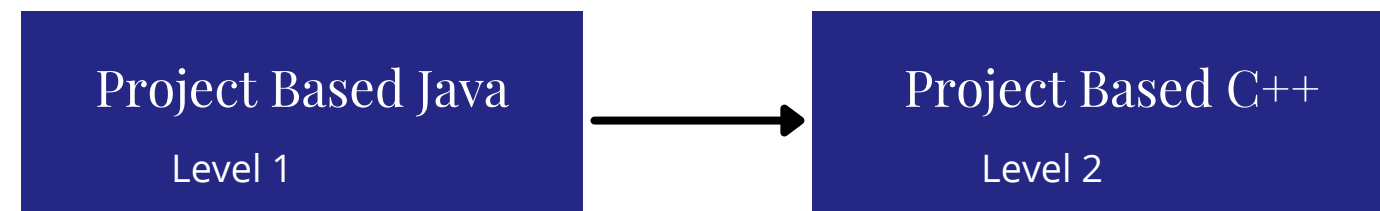
**GRADES**  
**5 - 12**



**GRADES**  
**5 - 12**



**GRADES**  
**6 - 12**





# SCRATCH PROJECTS

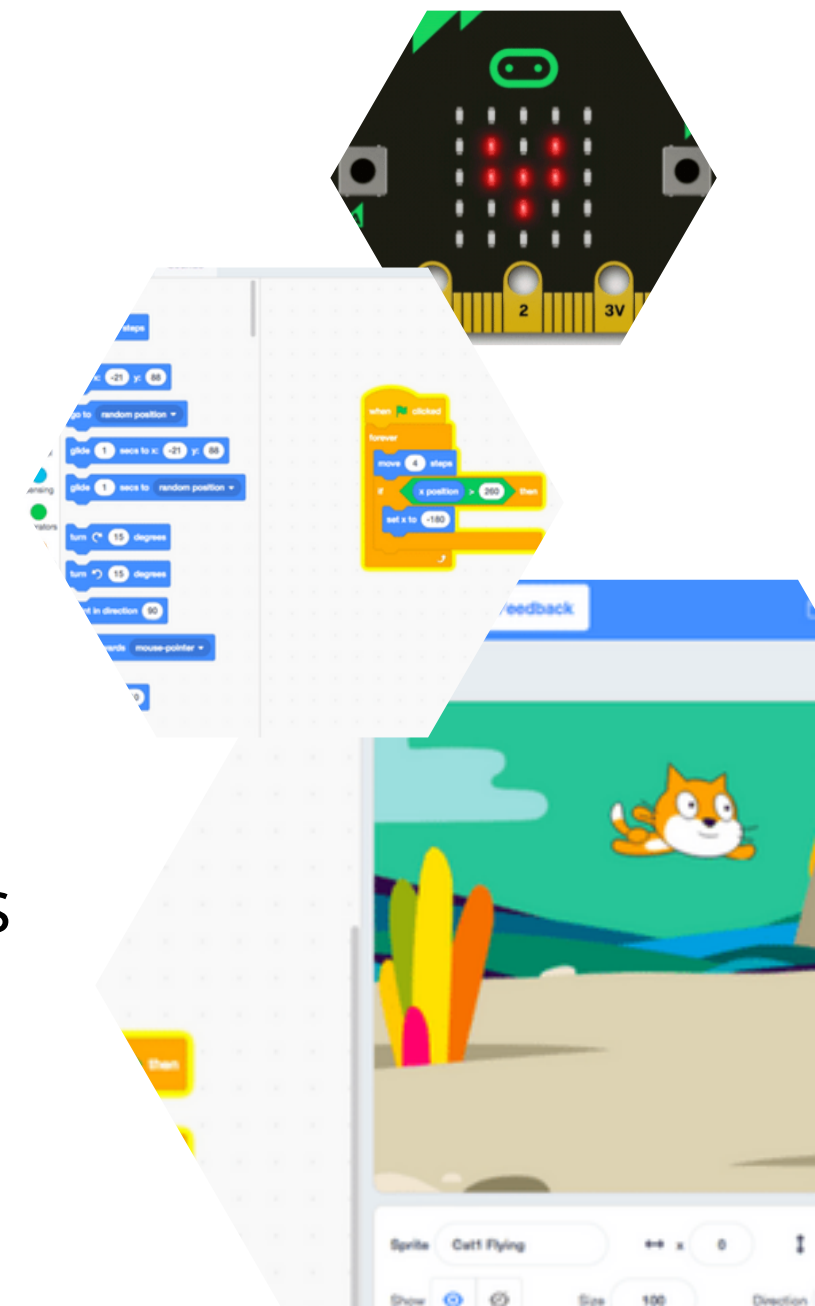
Grades 2 – 5

## Demonstrated skills upon graduation:

- Foundation of logic
- Understanding of basic game design
- Improved problem solving skills
- Code debugging
- Readiness for Artificial Intelligence with Scratch
- Basic Micro.bit interaction (programmable micro-computer)

Our projects focus on building logical and computational thinking from which students will learn the foundations of game design that can build solid coding foundations for machine learning.

- Design games and solve unique problems using Scratch, a block-based coding environment created by MIT
- Three levels of courses are available: **Beginner, Intermediate, Advanced**
- Each level contains Scratch coding fundamentals, 8 fun Scratch projects, and one final project at each student's choice.
- Students will be asked to present their projects on the last day.





# MACHINE LEARNING IN SCRATCH

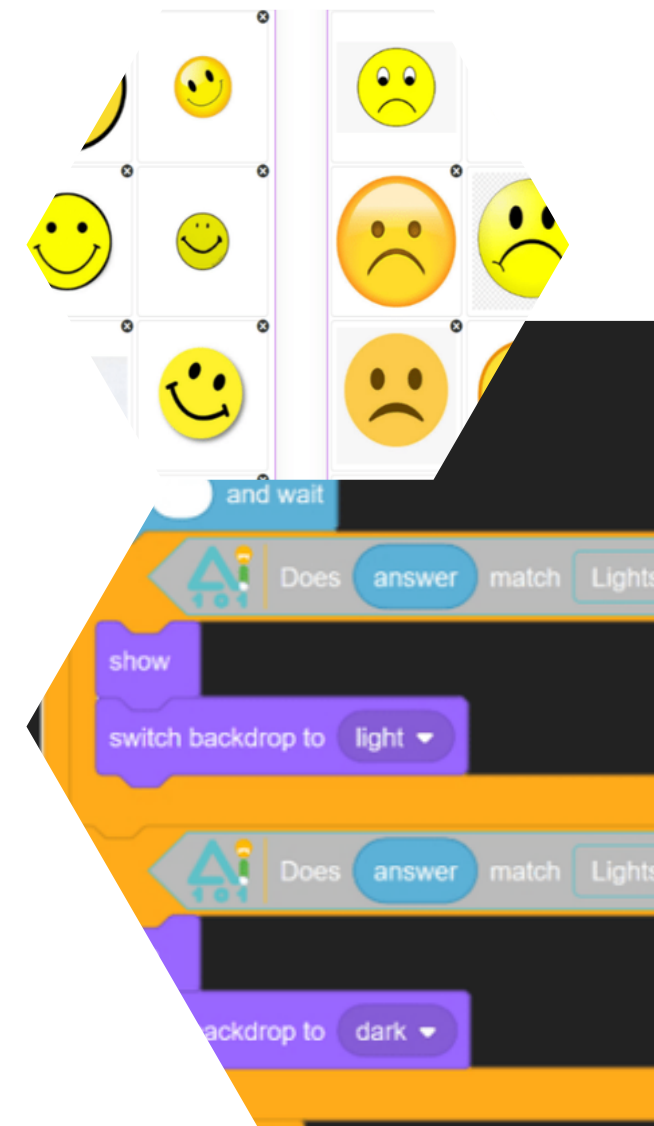
Grades 4 - 6

## Demonstrated skills upon graduation:

- Understanding of supervised machine learning using labels and sample data
- Searching and sorting algorithms
- Abilities to interpret the machine learning results
- Enhanced coding skills with loops, variables, and conditionals
- Improved problem-solving skills with problems from the real world

Our machine learning with Scratch is a great way to introduce machine learning and the concept of big data

- Students will have hands-on experiences creating projects and games in Scratch.
- Students will use text, image, and sound recognition software, as well as statistical classification and regression models.
- Learn to train and evaluate machine learning models using data and apply these models to make Scratch games with AI features.
- This course covers 8 machine learning projects, as well as one final project of the student's choice.



# PYTHON PROJECTS

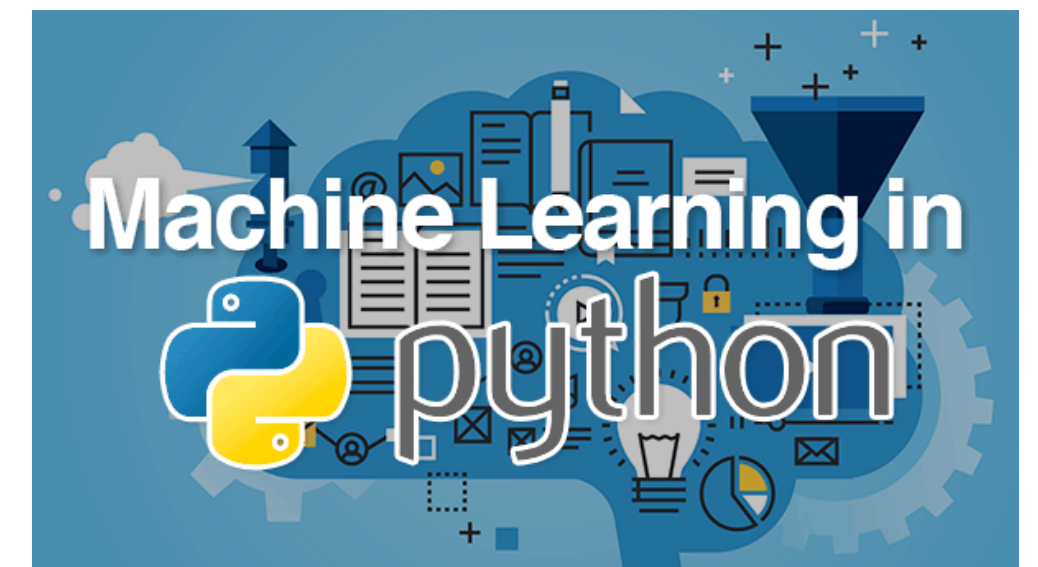
Grades 5 - 12

## Demonstrated skills upon graduation:

- Enhanced coding skills with lists, functions, and modules
- Ability to plan and design code for difficult tasks
- Improved problem-solving skills with problems from the real world

Our Python projects allow students to learn the core fundamentals of Python on the usage of variables, loops, classes, etc., as well as create graphical designs and interactive games which meet young students' interests.

- 
- Students will learn to program using Python, the most popular programming language for software engineering, data science, machine learning and AI.
  - Three levels of Python classes are available: **Beginner, Intermediate, Advanced.**
  - Each level contains Python coding fundamentals, 8 fun Python projects, and one final project of each student's choice.





# RASPBERRY PI + SENSORS IN PYTHON

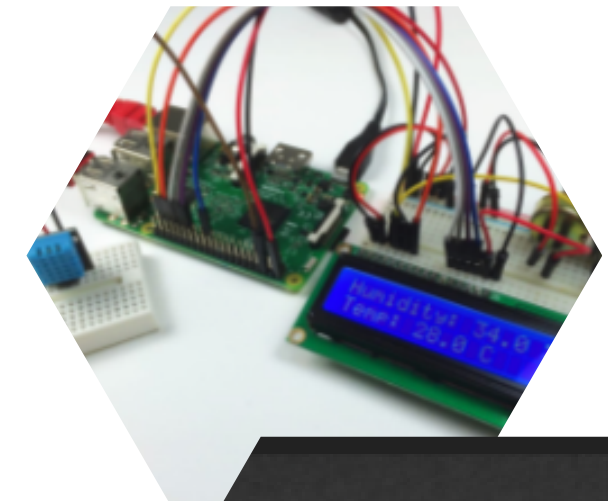
Grades 6 - 12

## Demonstrated skills upon graduation:

- Advanced problem solving with sensor modules and Python
- Advanced project physics concepts
- Experience with more than 25 electronic components
- Ready for machine learning with smart devices
- Advanced Raspberry Pi and sensor interaction

Our Raspberry Pi projects enable students to explore computing, and to learn how to control and communicate with various electronic sensors using languages like Python and Java.

- 
- Three levels of courses are provided, and each level contains 8 guided projects including circuit construction and Python programming.
  - Each level features two machine learning projects in which students train their own model and apply it to create a smart electronic system.
  - Levels 2 and 3 include a final project component so that students can apply what they have learned to their own original ideas.
  - Students will write code to interact with input and output devices such as IR sensors, photoresistors, LCDs, 7 segment displays, cameras, and more.



# RASPBERRY PI + SMART DEVICES

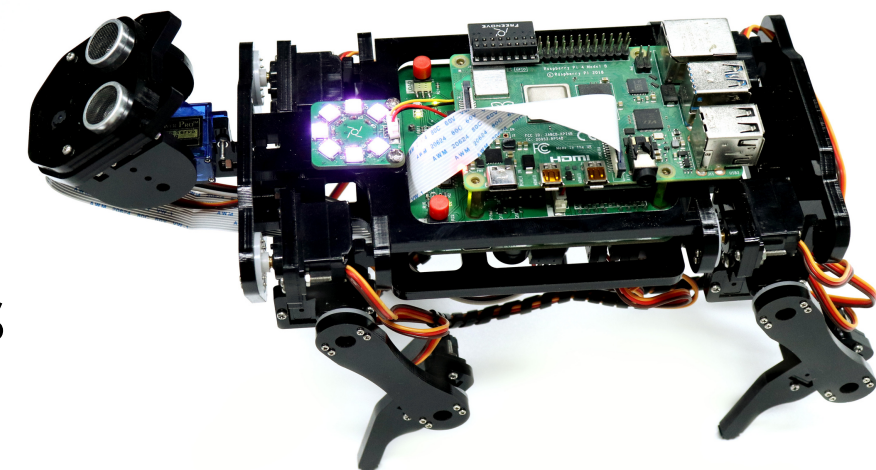
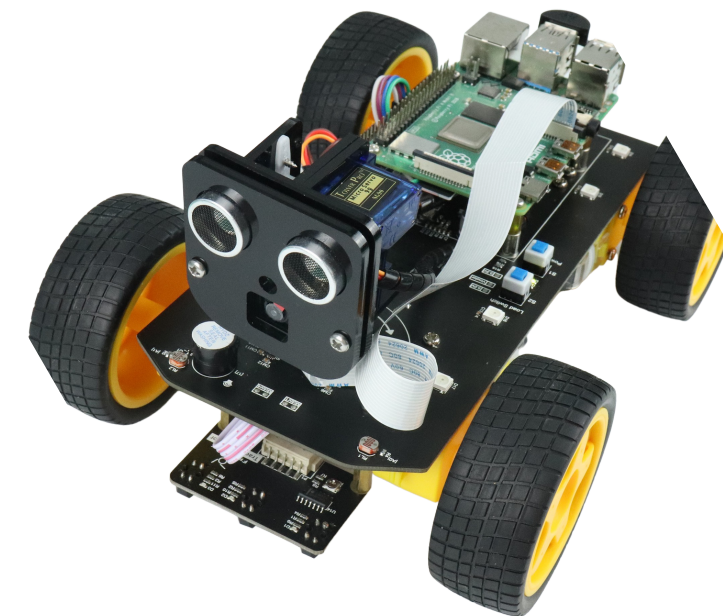
Grades 6 - 12

## Demonstrated skills upon graduation:

- Application of machine learning concepts to real world problems
- Advanced projects involving multiple sensors and vehicle control
- Understanding of machine learning data collection and significance of proper model training
- Experience constructing and controlling smart robotic systems

Our Raspberry Pi Smart Devices projects challenge students to develop solutions to real problems by combining machine learning, Python programming, and robotics.

- 
- Two levels of courses are provided, and each level features a smart robotic device equipped with sensors, lights, and motors for students to control.
  - The Raspberry Pi Smart Car course focuses on using machine learning models and data collected from the car's sensors to develop intelligent autonomous driving systems.
  - Students will get experience with collecting data from their devices and training models to accurately navigate their environments.





# AI CODE ACADEMY ADVANTAGE

**AI Code 101 platform makes it easy for students to create and apply their own machine learning models**

**Multiple levels of Raspberry Pi hardware courses with increasingly complex machine learning projects**

**Final projects allow students to create unique machine learning applications**

**Smart device projects allow students to design and build their own machine learning models**

**Machine learning is taught conceptually without hands-on experience**

**Only rule-based models taught**

**Student-lead machine learning projects are not offered due to complexity**

**Students use robots with pre-built machine learning models, which are not adjustable**

## OTHER COMPARABLE PROGRAMS

# SCRATCH PROJECTS

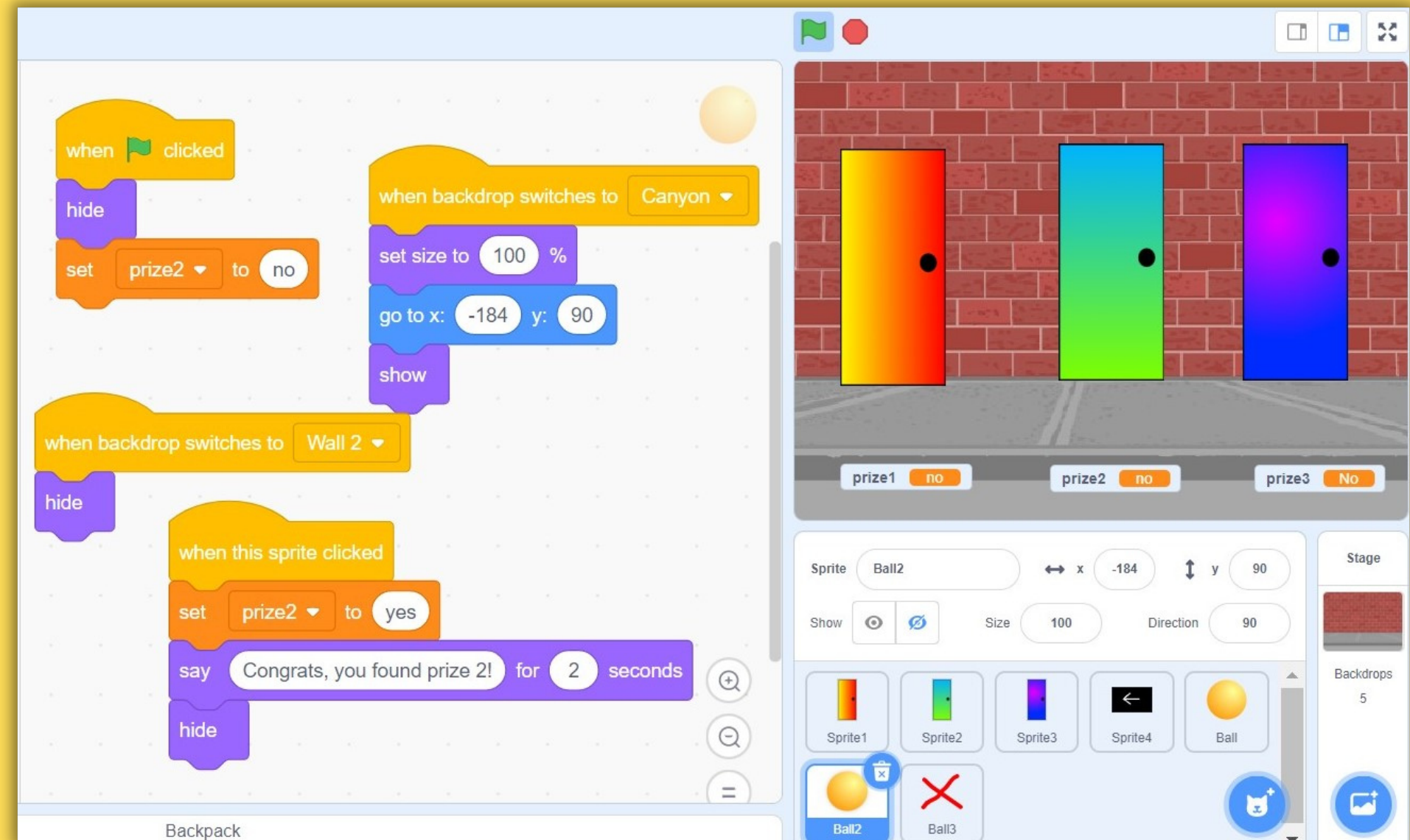
Grades 2 – 5

**ISAAC**

12 Years Old

**SCRATCH**  
Levels 1, 2, and 3

**FINAL PROJECT:**  
Crazy Scavenger Hunt



"My son loved this course. He created many fun games in this camp. Some of them were difficult for him, but he was able follow along and complete them all. "

**- Nicole, Parent of Isaac**

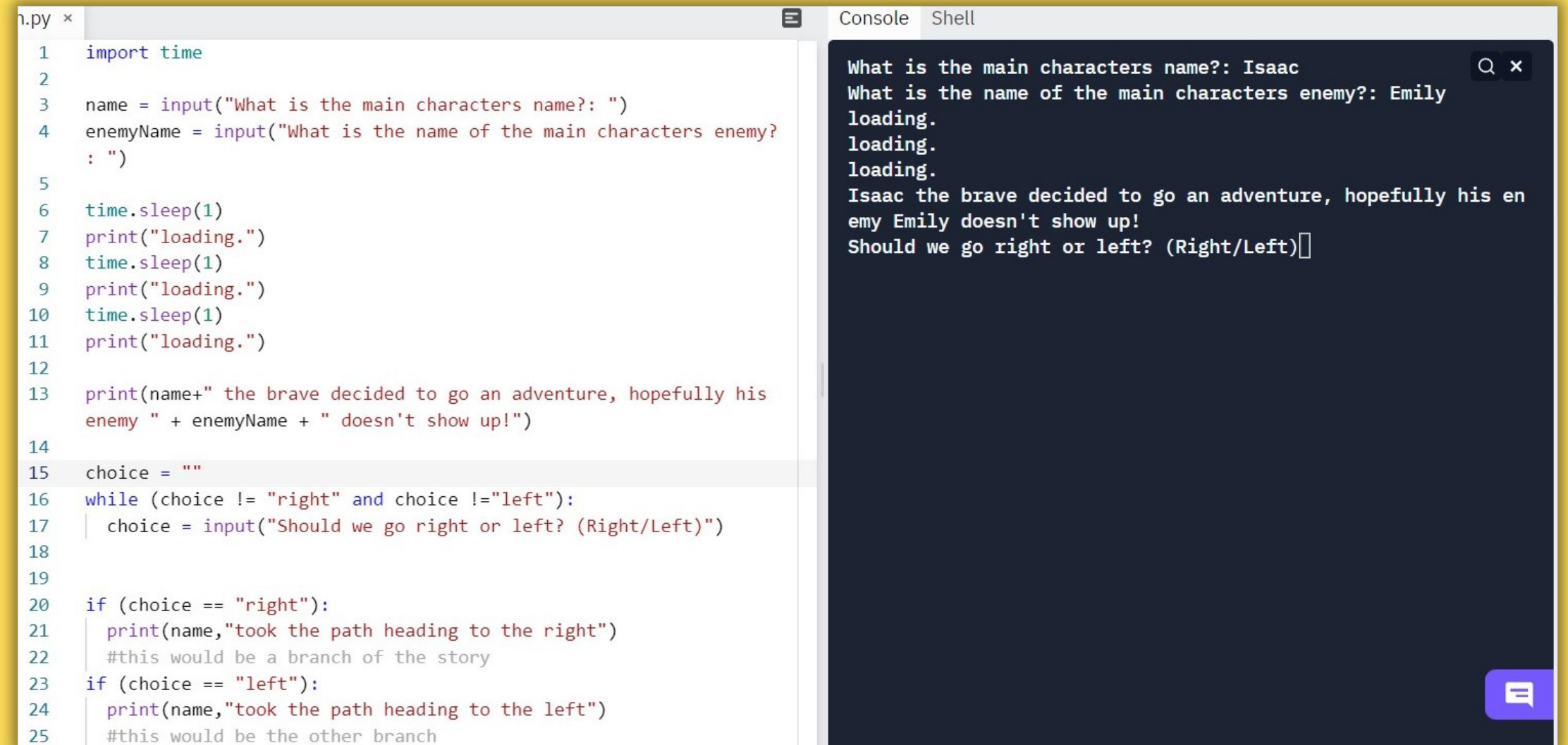


**JACOB**

10 Years Old

**PYTHON**  
Levels 1, and 2

**FINAL PROJECT:**  
**Text-Based Adventure Game**



```
1 import time
2
3 name = input("What is the main characters name?: ")
4 enemyName = input("What is the name of the main characters enemy?
: ")
5
6 time.sleep(1)
7 print("loading.")
8 time.sleep(1)
9 print("loading.")
10 time.sleep(1)
11 print("loading.")
12
13 print(name+" the brave decided to go an adventure, hopefully his
enemy " + enemyName + " doesn't show up!")
14
15 choice = ""
16 while (choice != "right" and choice != "left"):
17     choice = input("Should we go right or left? (Right/Left)")
18
19
20 if (choice == "right"):
21     print(name,"took the path heading to the right")
22     #this would be a branch of the story
23 if (choice == "left"):
24     print(name,"took the path heading to the left")
25     #this would be the other branch
```

Console Shell

```
What is the main characters name?: Isaac
What is the name of the main characters enemy?: Emily
loading.
loading.
loading.
Isaac the brave decided to go an adventure, hopefully his en
emy Emily doesn't show up!
Should we go right or left? (Right/Left)
```

"My 11 year old really enjoyed this class as well as the Level 1. He created small programs that really impressed me, I am easily impressed but my husband who is much more advanced was impressed too. My son really stayed engaged throughout the 90 minutes and participated actively. "

**- Daphne, Parent of Jacob**

# RASPBERRY PI PROJECTS

Grades 5 - 12

**EMILY**

13 Years Old

**HARDWARE CODING  
WITH RASPBERRY PI**  
Levels 1, and 2

**FINAL PROJECT:**  
Raspberry Pi Photometer



"Highly recommend. Such an interactive and engaging class where kids get to code and see the results in a tangible way. "

- **Celine, Parent of Emily**



# REVIEWS



★★★★☆ 4.66/5 STAR CUSTOMER REVIEW RATING

"My 14 year old loved this-- he found it interesting and told us about what he was working on each day. He seemed to feel comfortable talking with Coach Griffith and the group, and took his project seriously and had fun trouble shooting."

**- Joannah H, Machine Learning with Python**

"My son has done many classes this summer. This was by far his best class and specially because of the teacher Connor S. He loved the class, the way it was taught, the Scratch - AI projects and was looking forward to it each morning. He says he did not just like this class, he loved this class :)"

**- Apurva P, Machine Learning with Scratch**

"Our 9 year old daughter loved this class! This is the second course she has taken through the Delaware STEAM Academy and we are incredibly happy with her progression - more importantly, she has really enjoyed learning to code in different languages!"

**- Lauren C, Web Design with HTML/ CSS**

"My 11 year old daughter loved this class! She did have some basic coding background going into it, so that definitely helped her to feel comfortable. She said she really liked how the teacher taught the class."

**- Otti M, Project-Based JavaScript**