Programming through Python: Automation

Presented by AcademiaEdge

Teachers: Adam Ventura (11th grade)
Assistant Teacher: Eric Guo (10th grade)

Date and Timings: 2/21-5/9, Sunday from 3:30-4:30 PM EST
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Requirements: Any student may join if interested. This class is, however, recommended for students ages 12 and up. Students also must have a personal Gmail account, whether it's their own Gmail account or if it is owned by their parents to access google classroom and other course materials.

About:

We are a group of high school students who want to help people begin their journey into programming by introducing and teaching students Python, one of the worlds most versatile and used programming languages. Adam Ventura, the teacher of this course, is well versed in Python and has built and developed many projects of his own. He is excited to help people begin their journey into programming and can't wait to spread his knowledge.

Class Description:

Programming through Python: Automation is a course offered by AcademiaEdge, a nonprofit organization created by high school programmers. There are 12 classes in total, each class is an hour long. A detailed description of the class syllabus can be found below. All classes are virtual and will be held through Zoom. In addition to hosting our classes through Zoom we will be using google classroom to submit assignments and google calendar for parents and students to keep track of classes and assignments. Each class lecture will be recorded and put in a google drive along with the class slides for all students to reference too when doing their assignments.

Students can ask questions at any time during the class and the assistant or teacher will answer them. Additionally, students may message teachers via google classroom or by email and our teachers will respond as soon as possible. In order to give this individualized experience filled with fun projects and assignments guided towards young children, classes will be limited to 10-15 students so that teachers can give high-quality attention to each student. Sign up is first come first serve and a waitlist may be created if there is excessive student participation. This course will be guided towards students of ages 12 and up, but any student may join if interested. We are excited to introduce the world of automation to your child!

Syllabus:

First Class Schedule:

15 minutes	Introduction to course
15 minutes	Installing and Setting up Python on Personal Link
30 minutes	Go over the syllabus, explain class resources and policies

General Class Schedule:

10 minutes	Going over homework, review the previous lesson, Answer any questions
40 minutes	Go over the days lesson using interactive examples, practice, and projects
10 minutes	A reflection and summary of what was learned that day, go over and questions and assign homework

Course Content

Week 1: Introduction to course and Automation fundamentals:

- ❑ What is Automation?
- ❑ Class Resources, Policies, Expectations.
- ❑ Preparation for the course (installing python and text editor).

Week 2: Web Scraping: automatically opening the browser:

- ❑ What is web scraping?
- ❑ What is the webbrowser module used for?
- ❑ How to use the webbrowser module.
- ❑ ***Webbrowser project.***

Week 3: Web Scraping: downloading files from the web using requests:

- ❑ What is the requests module used for?
- ❑ How to use the requests module.

Week 4: Web Scraping: parsing HTML using the bs4 module:

- ❑ What is HTML?
- ❑ HTML basics.
- ❑ How to use your browser developer tools.
- ❑ What is the bs4 module?
- ❑ HTML parsing with BeautifulSoup.
- ❑ ***HTML parsing project.***

Week 5: Web Scraping: Controlling the Browser with Selenium:

- ❑ What is Selenium?
- ❑ Using Selenium.
- ❑ ***Selenium project.***

Week 6: Automating Emails: Gmail API:

- ❑ Enabling the Gmail API.
- ❑ Sending mail.
- ❑ Reading mail.
- ❑ Incorporating it into your programs.

Week 7: Automating Text Messages: Twilio:

- ❑ What is Twilio?
- ❑ Setting up Twilio.

- ❑ Incorporating it into your programs.

Week 8: GUI Automation: Controlling the mouse:

- ❑ What is GUI Automation?
- ❑ Getting set up.
- ❑ Moving the mouse.
- ❑ Mouse interaction.

Week 9: GUI Automation: Controlling the Mouse:

- ❑ Planning your mouse movements.
- ❑ Working with the screen.
- ❑ Image recognition.
- ❑ Getting Window Information.

Week 10: GUI Automation: Controlling the Keyboard:

- ❑ Sending a string from the keyboard.
- ❑ Key names.
- ❑ Pressing and releasing the keyboard.
- ❑ Shortcut combinations.

Week 11: GUI Automation:

- ❑ Best practices for scripts.
- ❑ Review of functions.
- ❑ Ethics of automation.
- ❑ ***GUI automation project.***

Week 12: Automation: Creating Your Own Programs!

- ❑ Project ideas.
- ❑ How to think of your own programs.
- ❑ What to learn next?

Rules and Expectations

Classroom Procedures:

Students are to stay muted at all times except if they have a question or when asked to be unmuted. The student may temporarily unmute himself to ask his/her question. Alternatively, if the student would not like to speak in front of the class, then the student may ask his/her question in the Zoom chat. We encourage students to ask questions and regularly participate in class. Also, we would like students to be respectful to their classmates and teachers.

Students, please do not:

- Eat or drink with your microphone turned on
- Be disrespectful to teachers or other students
- Put inappropriate pictures on your webcam
- Send inappropriate messages in the class chat

Please do:

- Ask questions
- Be attentive
- Be engaged and active throughout the class
- Make sure to have your camera on throughout the class
- Do assignments thoroughly
- Submit assignments before deadline
- Have Fun!

Google Classroom Layout:

Each lesson's recording will be found on google classroom along with the class's slides and notes. Homework assignments will be assigned and submitted via google classroom as well. Students can ask questions through the messaging system in google classroom or via email.

Homework procedures:

Students will be given homework in google classroom via google docs, which will consist of inserting screenshots or short-answer/multiple-choice questions, or google forms. The google forms will mainly be used for knowledge checks, while the google docs will be used for general homework assignments. Each assignment is due 24 hours before the next class to give ample time for teachers to grade students' assignments. Students should send a message or an email if they are unable to turn in their homework by then with a valid explanation of why they will not be able to turn in their homework by the deadline, and the teachers will come up with a possible solution. This also applies to missing a class. Course projects will also be assigned and submitted through Google Classroom. If a student misses an assignment deadline repeatedly an email will be sent to his/her parents.