

CS480 Computer Science Education (Fall 2023)

Student: Ronaldo Canizales

Canvas LTI Assignment

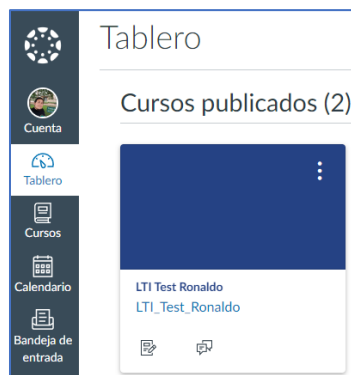
(1) Create a Git repo to post your code and invite me to your repo.

The link to the repository is the following: <https://github.com/armandocodigos/Canvas-LTI>

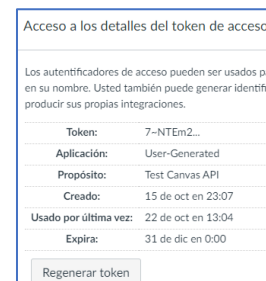
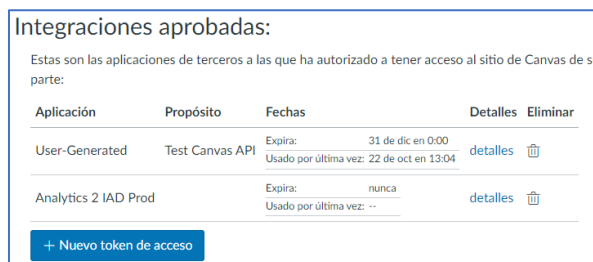
My username meaning in Spanish is “Building Codes,” a word game with my second name, Armando.

(2) Write a document explaining how you developed your Canvas LTI application.

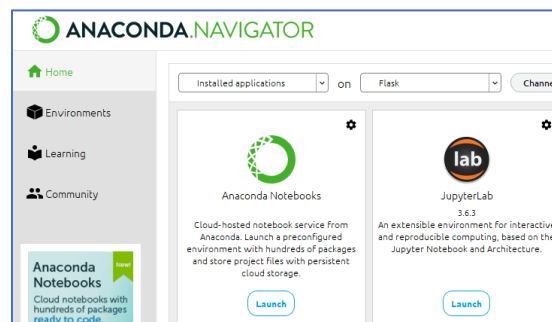
First, I created a <https://canvas.instructure.com/> account and created the course “LTI Test Ronaldo.”



I generated an Access Token in my account’s Approved Integrations to be able to use Canvas API.



Using Anaconda, I created a new environment for this assignment.



I installed Flask (<https://pypi.org/project/Flask/>), PyLTI (<https://pypi.org/project/PyLTI/>), and Canvas API (<https://github.com/ucfopen/canvasapi>). Then, I cloned the GitHub repository <https://github.com/kunal-aga/lti-poc-flask> as a starting code for my assignment.

At the External Apps tab of my course Settings, I configured “LTI Flask app” as follows:

The first screenshot shows the 'Aplicaciones externas' (External Applications) tab in the course settings. It lists several applications: Admin Analytics, Canvas Commons, Google Hangouts Meet LTI, Learning Solutions Portable Course, and LTI Flask app. The LTI Flask app is highlighted with a gear icon.

The second screenshot shows the 'Editar aplicación' (Edit Application) form for the LTI Flask app. The fields are as follows:

- Nombre:** LTI Flask app
- Clave de consumidor:** MY_CONSUMER_KEY
- Secreta compartido:** [Sin cambiar]
- Ejecutar URL:** http://127.0.0.1:5000/lti/
- Dominio:** [Empty]
- Nivel de privacidad:** Público
- Campos personalizados:** custom_field_name_01=custom_field_value_01, custom_field_name_02=custom_field_value_02, course.id=\$Canvas.course.id
- Descripción:** This LTI tool is used as an example POC for developing app using Flask.

Buttons: Cancelar, Entregar

I invited my other Gmail-based account (given by my Salvadoran university) as a student in the course.

| Nombre | Identificador de inicio de sesión | Identificación del SIS | Sección | Rol | Última actividad |
|--------|-----------------------------------|------------------------|---------|------------|--------------------|
| | 101499012256341593644 | 101499012256341593644 | Test01 | Profesor | 22 de oct en 18:20 |
| | 106972639705603873715 | 106972639705603873715 | Test01 | Estudiante | 22 de oct en 12:49 |

I created four assignments. Then, in my student account, I submitted two of them.

The 'Tareas' page shows a list of four assignments:

- Homework Test 01
- Homework Test 02
- Homework Test 03
- Homework Test 04

Each assignment has a green checkmark icon, indicating it has been submitted.

To implement and test my LTI code, I created a “Flask Test” activity inside my course’s Modules.

The first screenshot shows the 'Módulo' (Module) page. It has a sidebar with navigation links: Página de Inicio, Anuncios, Tareas, Foros de discusión, Calificaciones, Personas, Páginas, Archivos, Programa del curso, and Competencias. The main content area shows a list of activities under the 'Flask Test' module, including 'LTI Flask app'.

The second screenshot shows the 'Editar actividad' (Edit Activity) form for the 'LTI Flask app' activity. The fields are as follows:

- Título:** LTI Flask app
- URL:** http://127.0.0.1:5000/lti/
- Sangría:** Sin sangría
- ☒ Cargar en una pestaña nueva

Buttons: Cancelar, Actualizar

My code workflow. Inside the “app.py” file, I added the following code to the “index” function:

[a] Set API_URL and API_KEY. Initialize a new Canvas object.

```
API_URL = "https://canvas.instructure.com"
API_KEY = "7~NTEm2g0cHTJWI7ApGGP9TY7rbemxTaRcSVIfs6Dt9hcUqzE1UWEFoLnMmqRw2jZD"
canvas = Canvas(API_URL, API_KEY)
```

[b] Retrieve course ID and user ID from custom parameters. Obtain and display the names.

```
course = canvas.get_course(params['custom_course_id'])
teacher = canvas.get_user(params['custom_canvas_user_id'])

OUTPUT_TEXT = "Welcome to my Canvas LTI Assignment.<br>"
OUTPUT_TEXT += "<b>Teacher:</b> {}".format(teacher.get_profile()['short_name'])
OUTPUT_TEXT += "<b>Course:</b> {}".format(course.name)
```

[c] Obtain all users enrolled in the course whose role is a student. Display each name and email.

```
OUTPUT_TEXT += "<br><b>List of users in the course:</b><br>".format(params['context_title'])

users = course.get_users(enrollment_type=['student'])
for user in users:
    profile = user.get_profile()
    OUTPUT_TEXT += "<b>Name:</b> {}".format(profile['short_name'])
    OUTPUT_TEXT += "<b>Email:</b> {}<br>".format(profile['primary_email'])
```

[d] Per student, obtain and display all assignments’ information: name and submission status.

```
OUTPUT_TEXT += "<br><b>List of assignments per student:</b><br><br>"

for user in users:
    profile = user.get_profile()
    OUTPUT_TEXT += "<b>+Name:</b> {}".format(profile['short_name'])

    submissions = user.get_assignments(course)
    submission_list = [sub for sub in submissions]
    for sub in submission_list:
        OUTPUT_TEXT += "<b>-Assignment:</b> {}".format(sub.name)
        OUTPUT_TEXT += "<b>Submitted:</b> {}".format(
            "Yes" if sub.has_submitted_submissions else "No")
```

[e] Return the variable “OUTPUT_TEXT” that contains the HTML code to be displayed.

```
return OUTPUT_TEXT
```

Execute the LTI app through the “LTI Flask app” module, which redirects to <http://127.0.0.1:5000/lti/>

The image shows two side-by-side screenshots. The left screenshot is a Canvas LTI assignment interface for 'LTI_Test_Ronaldo'. It shows a sidebar with 'Flask Test' and 'LTI Flask app'. A red warning message at the bottom states: 'Usted está tratando de lanzar contenido inseguro desde un sitio seguro (Canvas). impedir que este contenido se cargue.' Below this is a button that says 'Cargar LTI Flask app en una ventana nueva'. A blue arrow points from the 'LTI Flask app' link to the right screenshot. The right screenshot is a web browser window at '127.0.0.1:5000/lti/'. It displays the output of the LTI app, which includes a welcome message, teacher and course information, a list of users in the course, and a list of assignments per student.

Welcome to my Canvas LTI Assignment.
Teacher: Armando Códigos.
Course: LTI Test Ronaldo.

List of users in the course:
Name: Ronaldo Armando Canizales Turcios ING. **Email:** rcanizales@uca.edu.sv

List of assignments per student:

| +Name: | -Assignment: | Submitted: |
|----------------------------------------|-------------------|------------|
| Ronaldo Armando Canizales Turcios ING. | Homework Test 01. | No. |
| | Homework Test 02. | Yes. |
| | Homework Test 03. | Yes. |
| | Homework Test 04. | No. |

(3) Do a video demonstrating your code and your LTI working.

YouTube URL's: <link>