

LECTURE 43

THREADS IN TKINTER GUIS

MCS 260 Fall 2020

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REMINDERS

- Please complete a course evaluation.
- Project 4 is due today at 6pm central.
- Worksheet 15 and Quiz 14 solutions posted recently.
- No TA or instructor office hours next week.

AFTER TODAY

- Blackboard site stays up until Dec 31.
- [My MCS 260 site](#) stays up "forever" and has everything except the videos.
- I can't make the lecture videos public unless they are edited (to protect student privacy). Editing is slow.
- I'll email you if I start posting edited lecture videos publicly.

GUI WORK SO FAR

- Lecture 36 — tkinter basics
- Lecture 38 — started encoder app
- Lecture 40 — finished encoder app

THREADING SO FAR

- **Lecture 39** — threading module
- **Lecture 42** — locks and synchronization

TODAY

We saw in [Lecture 40](#) that the encoder doesn't perform well if encoding is slow: The GUI is unresponsive.

Today we'll make it multi-threaded so the GUI remains responsive while encoding is in progress.

- Main thread: GUI main loop
- Worker thread: Perform encoding as needed

STEP 1

Let's move the program logic that updates the output (performing encoding) to its own object.

This new object is the **model**, which stores and updates the key data the interface uses.

STEP 2

Have the model do its encoding in a separate thread.

Use `threading.Event` to request encoding.

WHAT ELSE COULD WE DO?

- Perform encoding using an API (the way most actions in mobile apps occur)
- Make auto-update an option (settings menu?) with button to manually update if auto is disabled
- Make an application icon
- Make a button to switch to inverse (decode the current rotation)

REFERENCES

- [Official tkinter documentation](#)
- [Tk docs tutorial](#) demonstrates lots of features with Python code
- [Unofficial reference manual](#) by John Shipman

REVISION HISTORY

- 2020-12-03 Initial publication

