



**High-Performance Data-Intensive
Computing Systems Laboratory**

Jupyter for Statistics and Coding Operation

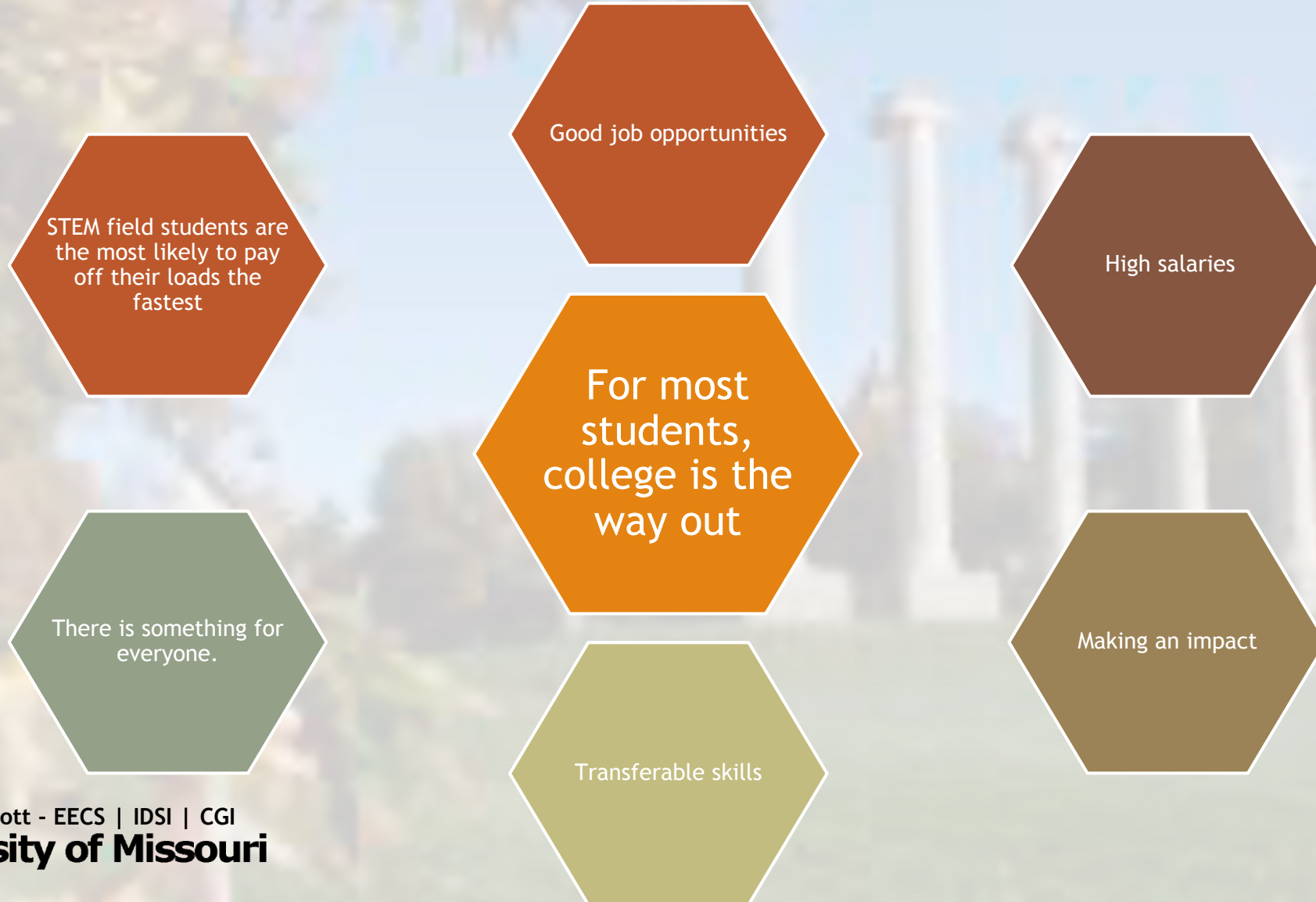
MORENet Technical Summit

20 Feb 2023



University of Missouri

WHY STEM



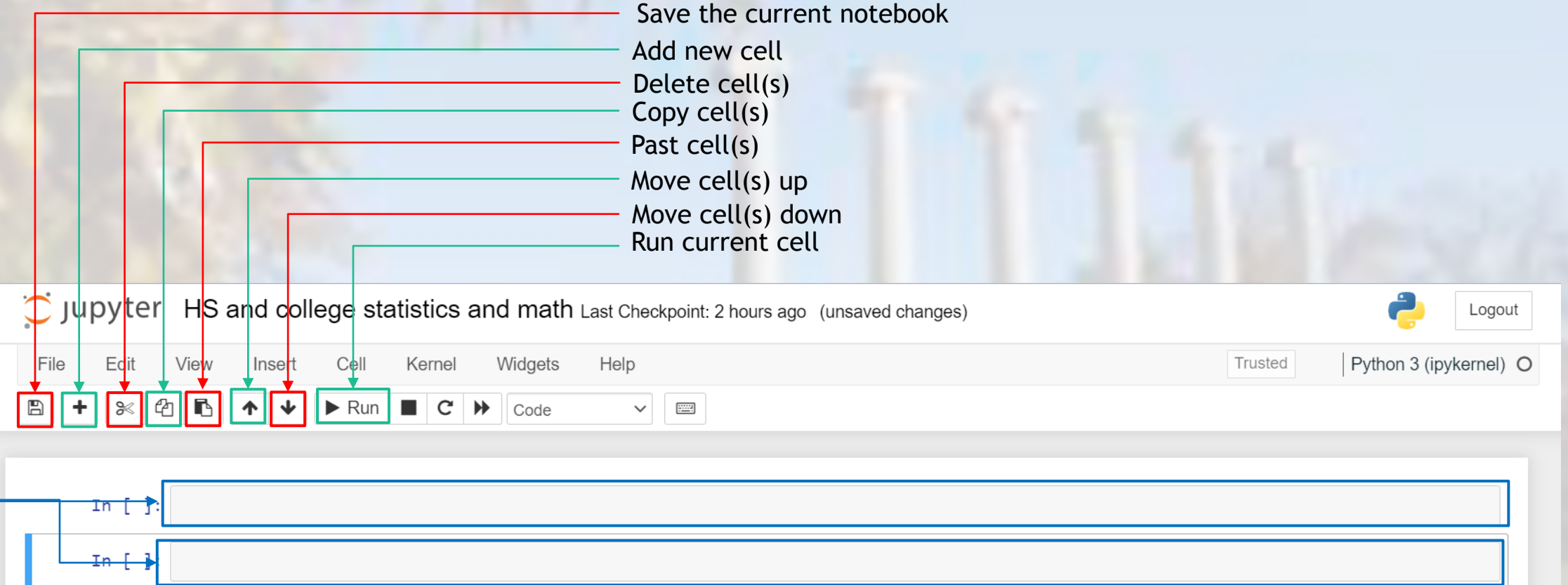
STEM made easy

- ▶ Coding is one of the key transferable skills that is needed across fields
- ▶ Easy way to teach coding with :
 - ▶ regular desktop/laptop computers
 - ▶ Step by step execution
 - ▶ A range of useful libraries



Jupyter notebook

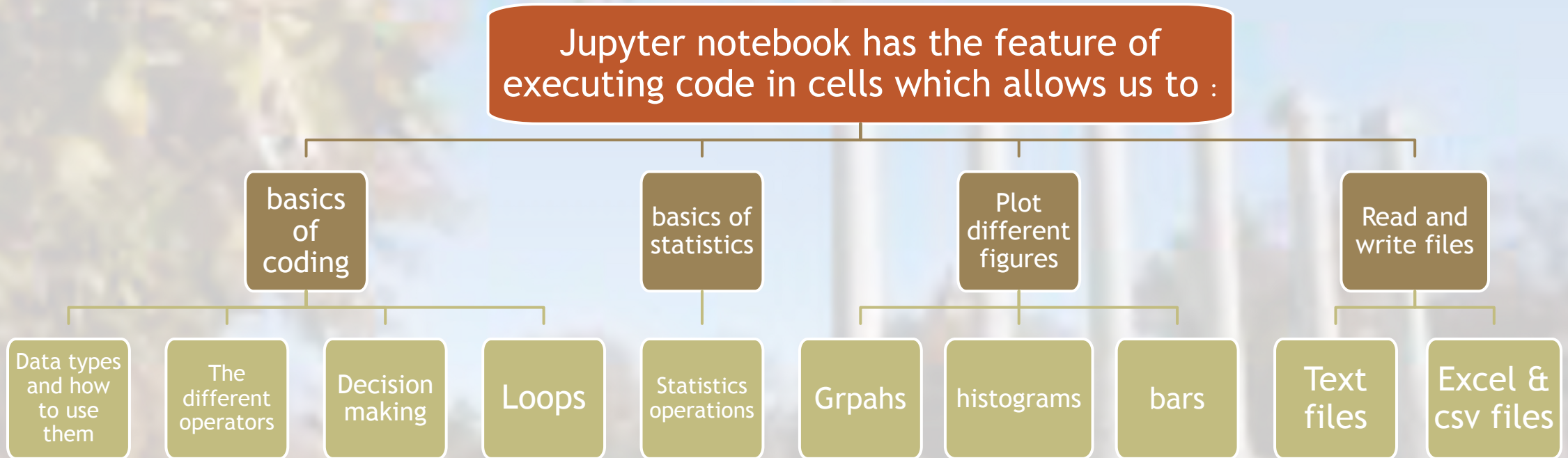
Jupyter notebook: introduction



The screenshot shows the Jupyter notebook interface for a file named "HS and college statistics and math". The top bar indicates the last checkpoint was 2 hours ago and there are unsaved changes. The menu bar includes File, Edit, View, Insert, Cell, Kernel, Widgets, and Help. The toolbar contains icons for saving, adding, deleting, copying, pasting, moving up/down, and running cells. Below the toolbar, two code cells are visible, each starting with "In []:". A blue line labeled "Cells" points to the first code cell.

- Save the current notebook
- Add new cell
- Delete cell(s)
- Copy cell(s)
- Past cell(s)
- Move cell(s) up
- Move cell(s) down
- Run current cell

Jupyter notebook: introduction



Jupyter notebook: Importing Libraries

- ▶ First step get the necessary libraries
- ▶ Depends on the application
- ▶ Libraries often needed:
 - ▶ OS: Path, file and folder manipulation
 - ▶ Sys: For providing inputs to the code
 - ▶ Numpy: anything related to matrix operations
 - ▶ Pandas: very useful for statistics operations
 - ▶ Matplotlib: used for visualizing and saving figures



Jupyter notebook: example

jupyter notebook to teach coding basics

jupyter notebook to teach statistics basics

