Notes for ECE 20875 - Python for Data Science

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These are lecture notes for Fall 2025 ECE 20875 by professor Aristides
Carrillo at Purdue. Modify, use, and distribute as you please.

Contents

Introduction

Data has a multitude of definitions, but it originated from information, and is used to generate something, be it knowledge or beliefs. There are also several kinds of data, such as quantitative and qualitative, or physical and digital.
Data analysis helps us make decisions and take actions.
Data science has several branches, such as collecting and organizing data, making observations, visualizing trends, identifying similarities, making predictions, prescribing courses of action, and developing and accelerating algorithms.