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Python language fundamentals
--- functions - default values, variable arguments, keyword arguments, *kwargs
--- tuple, list, dictionary
--- in , is , is not , // , *
--- list comprehension
--- lambda function , passing lambda to map and filter
--- generator ---- it will make the next element of the list available when we call next() on the generator
--- Exception Handling
--IO
--- multithreading --- join (blocking call)
--- Decorator (Annotation)
--- import modules
Python Web Server
--- Rest Web Service SPA
--- MPA render template , Session Management

-- DB access, routes

Full Stack Python (integrating front end and backend)
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backend = used with ML (machine learning libraries) ----
1. **Python language fundamentals (FOR using Libraries)**
2. DOMAIN knowledge(physics, machine learning , AI , statistics, graphs) to decide what parameters and which libraries
3. Machine learning algorithms !!!! Statistics , data cleaning , data fetching

Scientific language ---- matrices , APIs

Numpy uses ndarray function for handling multi dimensional arrays

ndarray is **very fast** as compared to list (partially in python and **partially C**)

Practice App

1. Rest Web Service Version
2. Multi page application (HTML app) Version

DATABASE
Create a Python Question Bank MCQ of 100 questions
get insert queries for 100 questions

Create table
qid, question , choiceA, choice B, choiceC, choice D , CorrectAnswer

populate the table with 100 rows with the help of chat gpt

Backend --- generator = it will yield the next question when next is called

Front end ----
Exam paper
Show 10 questions ---------generate 10 questions from backend and show on the screen
User will solve the questions and submit ----check the answers and show score
Show score screen
Buttons ----- show all answers , show wrong answers
Button -- Get next 10 questions(new testid)
Button - show graph (JS matplotlib)
Test Id x -axis , y-axis score ,bar graph of score

Button - End Test ---logout(erase all the tests) home page (login)
