

<b><i>UI (User Layer)</i></b>
countries: list
tKinter() void: __init__() void: display() - calls backendService().getCountryList() void: connection() - uses "Client Socket" to connect to the Backend Service void: Selected() - calls backendService()

<b><i>Backend (Business Layer)</i></b>
country: string countryList: list - caches country list
backendService() void: __init__() returns list: getCountryList() - returns string: build_query_getAllCountries() - calls databaseService().search() returns httpStatusCode: build_query_forACountry(country) - returns string: query_rangeYears(country, yearStart, yearEnd) or query_yearByYear(country, year) based on data - calls databaseService().search()

<b><i>Database Service (Data Layer)</i></b>
dbName: string sqliteConnection: url fileName: string - fully qualified file name with path
databaseService() void: __init__(query) - calls construct() void: construct(fileName) void: readDataFile() void: createDatabase() - calls connect() method - commits data into db table void: connect() - uses "Server Socket" to connect to the database server void: table(query) void: insert(query, dataframe) returns JSON object: search(query, value)

<b><i>Graphic Layer</i></b>
country: string
graphic() void: __init__(year, JSONObj) returns matplotlib object: xyPlot() - plt.subplots() - x: year, y: value