Data Analyst Capstone Project

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Key points outline for Data Analyst Capstone Project

1. **Current Technology Usage** - Use the 2 x 2 rectangle areas template:
    - Panel 1: Top 10 Languages Used (Stacked Bar)
    - Panel 2: Top 10 Databases Used (Stacked Column)
    - Panel 3: Top 10 Platforms Used (Word Cloud)
    - Panel 4: Top 10 Web Frameworks Used (Scatter Bubble)
2. **Future Technology Trends** - Use the 2 x 2 rectangle areas template:
    - Panel 1: Top 10 Languages Desired Next Year (Stacked Bar)
    - Panel 2: Top 10 Databases Desired Next Year (Stacked Column)
    - Panel 3: Top 10 Desired Platforms (Tree Map)
    - Panel 4: Top 10 Desired Web Frameworks (Scatter Bubble)
3. **Demographics** - Use the 2 x 2 rectangle areas template:
    - Panel 1: Respondents by Age (Pie Chart)
    - Panel 2: Respondent Count by Country (Map Chart)
    - Panel 3: Respondent Distribution by Education Level (Line Bar Chart)
    - Panel 4: Respondent Count by Age, Classified by Education Level (Stacked bar Chart)

Outline Summary

This project goal is to present Data analysis of survey data of the top 10 languages spoken, 10 top databases, 10 top Frameworks and trends for the next year.

Data analysis results are visual graphing used several variables to gain key insights

Executive Summary

Summary of key Findings

- **The data analysis of the survey data shows a strong correlation between more A.I. technology software and machine learning.**

- **In addition, as technology changes, the demand for Web Framework, Database storage and the need for this security and Cyper innovations.**

- **Based on analysis for the 10 top 10 languages spoken, the International market should be focused on for high profit margins in technology, as demand is high.**

Introduction summary

This project data analysis wil analyze survey data with relevant information for the: top 10 languages spoken, databases, Web Frameworks and future patterns and trends. Business Data information systems,Web Software and international language software developers can benefit to these key finding trends.

In turn, this analysis will give them key trends currently and forecasting customer needs for the next year.

Methodology

The following methodology that is stated below. The data analysis was performed by using the dataset Survey data.csv. This dataset was selected based on relevant survey questions and customer datasets.

The following steps were done to clean, wrangler and analyze the data:

 # 1 Load and Inspect the Dataset (Survey data.csv.)

#2 Import necessary libraries like pandas and numpy:

```
import pandas as pd
```

```
import numpy as np
```

Methodology steps (cont.)

#3 Check structure, data types and missing values.

print(df.info()), print(df.describe()), print(df.isnull().sum())

#4 Check data for missing values, duplicates, and incorrect data types.

df = df.drop_duplicates()
df['column_name'] = df['column_name'].fillna(df['column_name'].mean())

#5 Wrangling of data types to extract key data including columns, rows, headings and filters.

df['total_price'] = df['quantity'] * df['unit_price'],
df_filtered = df[df['total_price'] > 100], sales_summary.rename(columns={'total_price': 'total_sales'}, inplace=True)

#6 Perform statistical analysis and identify trends on dataset

```
print(df['total_price'].mean()), print(df.corr(numeric_only=True))
```

#7 Visualize data using Matplotlib or Seaborn for insights.

```
import matplotlib.pyplot as plt
import seaborn as sns
```

Programming language trends

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The data analysis for this sector shows reviews for ease of usage, compatibility and pr

- **Top Programming languages used are: Jav**

  ,TypeScript, Java, Go, Rust, C#, Swift, Kotlin
- **Based on analysis for the next year, focus on t future profits.**

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Programming languages Findings/Implications

- **Based on the data analysis, the top 10 languages will overlap with the prior list and continue to have high profit margins and customer satisfaction indicators through 2028.**

Programming languages Findings/Implications (cont.)

➤Focus in marketing and production is consistent with the original list of 10 languages.

➤Python will be #1 and the trends find there's a growing emphasis on developer experience, with languages that are easier to learn and read and maintain gaining popularity.

➤Finally, security and reliability are paramount concerns in the digital age, leading to a greater focus on languages with built-in safety features.

Top 10 database Summary

Based on analysis by customer survey reviews, sales and top sellers data,.

Top 10 are:

Oracle, PostgreSQL,MongoDB,, Snowflake,

Redis, Elasticsearch, IBM DB2, SQLite and Firebase.

Top 10 Database Trends

- Based on the data analysis of customer satisfaction reviews, sales of databases and th key needs requested for databases, here is the summary for trends.

- The rise of NoSQL databases, which offer greater flexibility and scalability for handling unstructured and semi-structured data.

Database Findings/Implications (cont.)

- Oracle remains at the top and has even extended its lead with the continued development and integration of AI-powered features.

- The growth of platforms such as "Databricks" highlight the demand for engines that can process massive analytical workloads in distributed environments.

Dashboard Analysis