BUSINESS MEMO

To: Oeson Learning Faculty
From: Tabashu Thulasi, Data Science Intern
Subject: Data-Driven Insights on Digital Overstimulation and Lifestyle Behavior

1. Introduction

In today's hyperconnected world, digital overstimulation has become a significant concern affecting mental well-being and lifestyle choices. Leveraging a comprehensive dataset on overstimulation behaviors, this capstone project aimed to uncover key behavioral patterns and provide actionable insights using exploratory data analysis and predictive modeling.

The project highlights the role of digital exposure, sleep, stress, and activity habits in predicting overstimulation, enabling wellness organizations to make informed decisions on digital health strategies.

2. Key Findings

2.1 High Overstimulation Prevalence

- **63.75%** of the individuals in the dataset were classified as overstimulated.
- *Implication:* Digital overload is widespread and needs early intervention.

2.2 Screen Time is the Leading Contributor

- Overstimulated users spent **7.46 hrs/day** on screens vs. **4.54 hrs/day** for others.
- *Implication:* Limiting screen exposure can help reduce cognitive fatigue.

2.3 Poor Sleep Strongly Correlates

- Overstimulated individuals averaged **5.89 hrs of sleep**, compared to **7.58 hrs** for others.
- *Implication:* Rest quality is a vital factor in maintaining mental clarity.

2.4 Stress, Tech Usage & Anxiety Influence Outcomes

- High **stress scores**, increased **tech usage**, and moderate **anxiety levels** were linked with greater overstimulation.
- *Implication:* Mental health and digital behavior are closely tied.

2.5 Predictive Modeling Results

- **Random Forest** outperformed other models with **100% accuracy** (on test data), identifying top features:
    - Screen Time
    - Sleep Hours

- Stress Level
- Tech Usage

3. Actionable Recommendations

3.1 Encourage Digital Wellness

- Promote **screen time limits** (e.g., under 5 hrs/day).
- Introduce **device-free breaks** or "digital detox" challenges.

3.2 Improve Sleep Hygiene

- Advocate for **consistent sleep schedules** and reduced screen usage before bedtime.

3.3 Promote Stress Management

- Encourage use of **mindfulness apps**, exercise, and breathing techniques during the day.

3.4 Design Targeted Interventions

- Build awareness campaigns targeting **young adults**, who show higher overstimulation rates.
- Use prediction models to personalize wellness plans.

4. Implementation & Next Steps

Timeline	Action Steps
0–3 Months	Launch a digital health awareness campaign, promote sleep & screen balance
3–6 Months	Deploy predictive wellness dashboards in community centers/schools
6+ Months	Refine models with new data, build AI-based digital wellness assistant

5. Conclusion

This analysis reinforces that **screen time, poor sleep, and stress** are the strongest predictors of overstimulation. By proactively addressing these factors, individuals and organizations can foster better mental well-being, productivity, and quality of life. The insights and models developed in this project can guide strategic wellness planning, digital health campaigns, and personalized support.

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