

## ***Use Case 5: Analysis of Health Behaviors in Melbourne Based on Gender, Age, and Location***

### ***Objective:***

*To analyze health behaviors among residents of Melbourne, focusing on smoking, vaping, and self-reported physical and mental health across different demographic segments of gender, age, and specific locations.*

### ***DataSource:***

*Survey responses from the "Social Indicators for City of Melbourne Residents 2023," covering various health indicators such as smoking behavior, vaping behavior, self-reported physical health, and self-reported mental health.*

### ***Analytical Approach:***

#### ***1. Smoking Behavior Analysis:***

- Investigate smoking habits (daily or occasional) across different demographic segments of gender (Male, Female), age groups, and specific locations in Melbourne.*
- Identify patterns and trends in smoking behavior to understand variations based on gender, age, and location.*

#### ***2. Vaping Behavior Analysis:***

- Analyze vaping habits (daily or occasional) among different demographic segments of gender, age groups, and specific locations in Melbourne.*
- Compare vaping behaviors across demographic categories to discern usage patterns and prevalence.*

#### ***3. Self-Reported Physical Health Analysis:***

- Evaluate self-reported physical health (rated as excellent or very good) across demographic segments of gender, age groups, and specific locations in Melbourne.*
- Identify demographic groups and locations with higher self-reported physical health ratings and explore contributing factors.*

#### ***4. Self-Reported Mental Health Analysis:***

- Assess self-reported mental health (rated as excellent or very good) among different demographic segments of gender, age groups, and specific locations in Melbourne.*
- Compare mental health perceptions across demographic categories to uncover variations in reported mental well-being.*

### ***Comprehensive Analysis:***

- Utilize statistical analyses to identify significant associations and differences in health behaviors (smoking, vaping) and self-reported health (physical and mental) based on gender, age, and location.*
- Employ visualization techniques such as charts, graphs, and maps to illustrate findings and highlight trends across various health indicators.*
- Generate insights into the prevalence of smoking and vaping, as well as perceptions of physical and mental health, tailored to specific demographic groups and geographic areas.*

### ***Insights and Recommendations:***

- *Summarize key findings in a detailed report outlining notable trends and patterns in health behaviors and perceptions.*
- *Provide actionable recommendations for health policymakers, community health programs, and local authorities to address identified health concerns effectively.*
- *Suggest targeted interventions and health promotion strategies based on data-driven insights to improve overall health outcomes in Melbourne.*

### ***Potential Applications:***

- ***Health Policy Development:*** *Inform the development of targeted health policies and interventions to address smoking and vaping prevalence and enhance overall physical and mental health among different demographic segments in Melbourne.*
- ***Public Health Campaigns:*** *Design public health campaigns aimed at reducing smoking and vaping rates and promoting positive health behaviors based on demographic insights.*
- ***Community Health Initiatives:*** *Engage with local communities to implement health initiatives aligned with identified health needs and perceptions.*
- ***Long-Term Health Monitoring:*** *Monitor changes in health behaviors and perceptions over time to evaluate the impact of interventions and adjust strategies for sustained health improvements in Melbourne.*