UCI Coding Bootcamp

Project Proposal

Saturday, December 9th

Team: Caitlyn, Charles, Tashia, Kamila

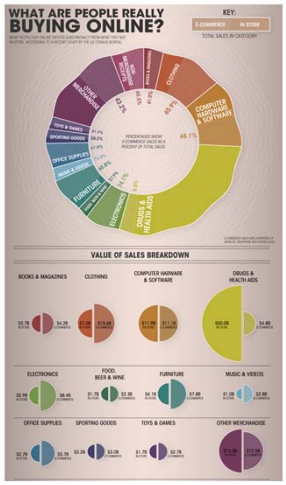
Background

- For years, business headlines have screamed about the demise of brick-and-mortar retail stores at the hands of e-commerce.
- The accepted storyline seems to be that the steep drop in business at physical stores is a result of growing online sales.
- If you dig deeper into the market of consumer data, you'll find the truth is much less black and white.

Project Description – Scope

- Our project is to uncover patterns in purchasing behavior in retail (**online vs. brick & mortar**) in the US.
- We'll examine relationships between a variety of standard **retail KPIs and analytics common between online and brick & mortar**; trends in purchasing behavior over the course of the year; and related questions, as the data admits. (see next slide for retail KPI sample details)
- Other
  - Region: US
  - Criteria: Retail that has both online and brick & mortar presence, price match, type of stuff they sell
  - Timeframe
    - Last 5 holiday seasons
    - Holiday season defined as **Nov 1st – Dec 22nd**
  - Stores
    - WalMart
    - CostCo
    - Amazon
    - Target

KPIs – Key Performance Indicators & Analytics – Sample



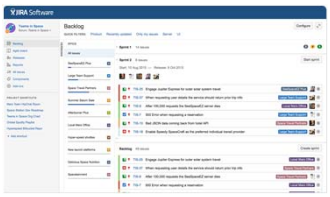
KPIs e-Commerce	KPIs – Retail
New visitors	New visitors
Unique visitors	Unique visitors
Total traffic	Total footfall
No. of returning visitors	No. of returning customers
Real time traffic	Real-time in-store footfall
Time spent on a page	Dwell time in a certain zone
Pageviews per visit	Avg. no. of zones visited per visit
Type of device	Type of device
Avg. time spent on site	Avg. time spent at a location
User flow	Path analysis
User profile	Location Personas
Frequency of visits	Frequency of visits
Avg. duration per visit	Avg. duration per visit
Campaign performance	Campaign performance (SMS, Emails, Captive Portal, In-app)
Timeline reports – track visits by hour, day, week	Timeline reports – track visits by hour, day, week

Team Members

Kamila Bajaria, Caitlyn Ta, Tashia Hughes, Charles Nguyen

Tools

- Collaboration
  - Slack
- Coding
  - GitHub
  - Jupyter Notebook
  - Python, Pandas, Matplotlib, Seaborn
- Datasets
  - APIs
- Project Management
  - JIRA
- Presentation & Write-Up
  - PowerPoint
  - MS Word

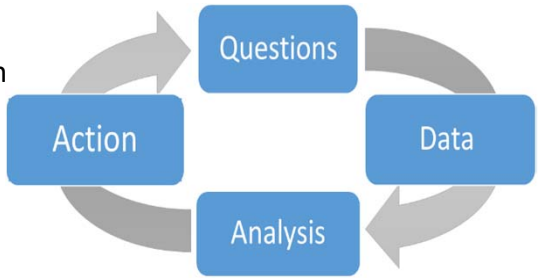


Research Questions to Answer

- Online vs. Brick & Mortar – are online sales higher than brick & mortar?
  - To what extent is online shopping popular or "eating into" brick & mortar market share?
  - Is online revenue higher than regular store revenue?
  - What KPIs and Analytics are commonly used to measure online and brick & mortar retail performance?
  - In what product categories are online sales higher than brick & mortar vs. lower and why?

Data Sets to be Used (draft list)

- Free APIs
  - WalMart, Amazon
- Kaggle
  - Online product sales
- UCI Machine Learning Repository
- BigML
  - https://bigml.com/gallery/datasets/consum



Task Breakdown by Member

- Caitlyn
  - Project Proposal
  - Code (25%)
  - Git Project Management (50%)
  - Visualizations SME
- Charles
  - Researching Data Sets
  - Code (25%)
  - Write Up Project Summary (50%)
- Tashia
  - Researching Data Sets
  - Code (25%)
  - Present (50%)
  - Git Project Management (50%)
- Kamila
  - Code (25%)
  - Present (50%)
  - Write Up Project Summary (50%)
  - Powerpoint Presentation (100%)

Next Steps

- Load Project Tasks into JIRA – Kamila
- Create presentation templates in MS Word and MS PowerPoint – Kamila
- Finalize data set identification and list – Team
- Create GitHub Repository – Tashia/Caitlyn

Appendix – Idea Brainstorming 12/9

- Holiday Vacation
  - Destination - hot vs cold
- Holiday Gifts -
  - Men vs Women
  - Best gifts top 5
  - Kid
  - Pets
- Holiday Movies
  - What would be the most popular by next week
- **Holiday Shopping /Retail**
  - **Online vs brick mortar**
  - **By price point**
  - **Seasonality**
- Sports
  - College Football Playoffs
  - Baseball
- Technology
  - Mobile phones (apple, samsung, etc)
  - Virtual Assistant
  - Public Cloud - AWS, Google, etc.