BSBINS401 - Analyse and Present Research Information

Session 9: Introducing Independent Research Projects

Lecturer: Jordan Hill

Learning Objectives

1. Discover best practices for scoping a research project.
2. Identify reliable data sources and evaluate their suitability.
3. Understand the ethical considerations around data selection.
4. Begin formulating ideas for Assessment 2 (Independent Research Project).

Session Overview

- Scoping a Research Project
- Brainstorming & Idea Generation
- Evaluating Data Sources
- Ethical Considerations in Data Selection
- Activities & Next Steps
- (Assessment 2 Starts This Week!)

Scoping a Research Project

1. Clarify Objectives • Craft specific research questions or hypotheses. • Set realistic boundaries (timeframe, data availability).	**3. Identify Potential Datasets** • Public repositories (Kaggle, government portals). • Proprietary data (with permission/clearances).
2. Define Scope & Feasibility • Consider resource constraints (skills, tools, time). • Avoid overly broad or ambiguous topics.	**4. Plan the Analysis** • Preliminary methodologies (statistical tests, visualizations). • Potential outcome or deliverables.

Brainstorming Project Ideas

1. **Personal/Industry Interests**
   - Healthcare, finance, social media, education, environment, etc.
   - Relevance or real-world utility.

2. **Look for Gaps or Trends**
   - Under-explored datasets.
   - Hot topics in data science (e.g., sustainability, user behavior).

3. **Leverage Past Experience**
   - If you have domain knowledge or existing connections, collaborate or request relevant data.

4. **Tip**: Maintain a short list of 2-3 topics you find compelling or feasible.

Evaluating Data Sources

1. Reliability • Credible publisher (e.g., official government site or well-known research institution). • Peer-reviewed or verified sources.	**3. Timeliness & Relevance** • Ensure data currency (outdated sets might be less useful). • Align with your research objectives or timeframe.
2. Completeness • Check for sufficient data points, minimal missing values. • Access to supporting documentation or codebooks.	**4. Accessibility & Format** • Permissions or licenses to use. • Formats amenable to analysis (CSV, Excel, JSON, SQL).

Ethical Considerations

1. **Respect Privacy**
   - Anonymize sensitive information (names, IDs).
   - Comply with relevant regulations (GDPR, local policies).

2. **Consent & Transparency**
   - Data should be obtained legitimately.
   - Users/participants must be informed if data is personal or sensitive.

3. **Bias & Representation**
   - Evaluate how the dataset was collected; any potential biases?
   - Strive for balanced coverage in the data.

4. **Data Usage Policies**
   - Check license agreements, especially for commercial or public sharing.

Assessment 2: Independent Research Project

Component	Details
Project Proposal	• Clearly state research objectives, scope, and data sources • Include a brief literature review or context if relevant
Final Report & Presentation	• Demonstrate data analysis steps, findings, and visuals • Present real-world implications or recommendations

Due Date: Week 16 (Final Report & Presentation)

In-Class Activities

1. **Brainstorming Project Ideas**
   - Generate at least 2 potential research topics you're interested in.
   - Pair up and provide feedback on topic scope and feasibility.

2. **Workshop: Evaluating Data Sources**
   - Use the "Data Source Evaluation Checklist."
   - Assess 1–2 potential datasets for reliability, completeness, and ethical considerations.

Additional Resources

- **Required Reading**
  - Guide: Scoping a Research Project
  - "Python for Data Analysis" by Wes McKinney, Chapter 6
- **Optional Reading**
  - Ethical Considerations in Data Selection
- **Templates**
  - Research Project Proposal Template

Next Steps

Today's Objectives:

1. Select a Preliminary Topic • Finalize your independent research focus.	**2. Gather Potential Datasets** • Use your evaluation checklist to confirm feasibility.	**3. Start Drafting Your Proposal** • Outline objectives, methodology, expected outcomes.

Questions?

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