

# **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).

## 2. Define Scope & Feasibility

- Consider resource constraints (skills, tools, time).
- Avoid overly broad or ambiguous topics.

## 3. Identify Potential Datasets

- Public repositories (Kaggle, government portals).
- Proprietary data (with permission/clearances).

## 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.

## 2. Completeness

- Check for sufficient data points, minimal missing values.
- Access to supporting documentation or codebooks.

## 3. Timeliness & Relevance

- Ensure data currency (outdated sets might be less useful).
- Align with your research objectives or timeframe.

## 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	<ul style="list-style-type: none"><li>• Clearly state research objectives, scope, and data sources</li><li>• Include a brief literature review or context if relevant</li></ul>
Final Report & Presentation	<ul style="list-style-type: none"><li>• Demonstrate data analysis steps, findings, and visuals</li><li>• Present real-world implications or recommendations</li></ul>

**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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