

Choosing a Topic

Stage 1: Defining the Problem



Introduction

Your topic should be of interest to you personally. It should also involve sufficient mathematical content and analysis to constitute a reasonable culminating project. But, it should not be so large that a reasonable analysis using the skills and knowledge from this course is impossible.

Possible Topics

Some possible sources for ideas include:

- A social issue of interest to you
- A sport or hobby that you enjoy
- An issue from another course that you would like to investigate
- An interesting article from a newspaper
- An interesting issue from the Internet
- An issue arising from employment or a possible future career
- An issue generated through brainstorming.



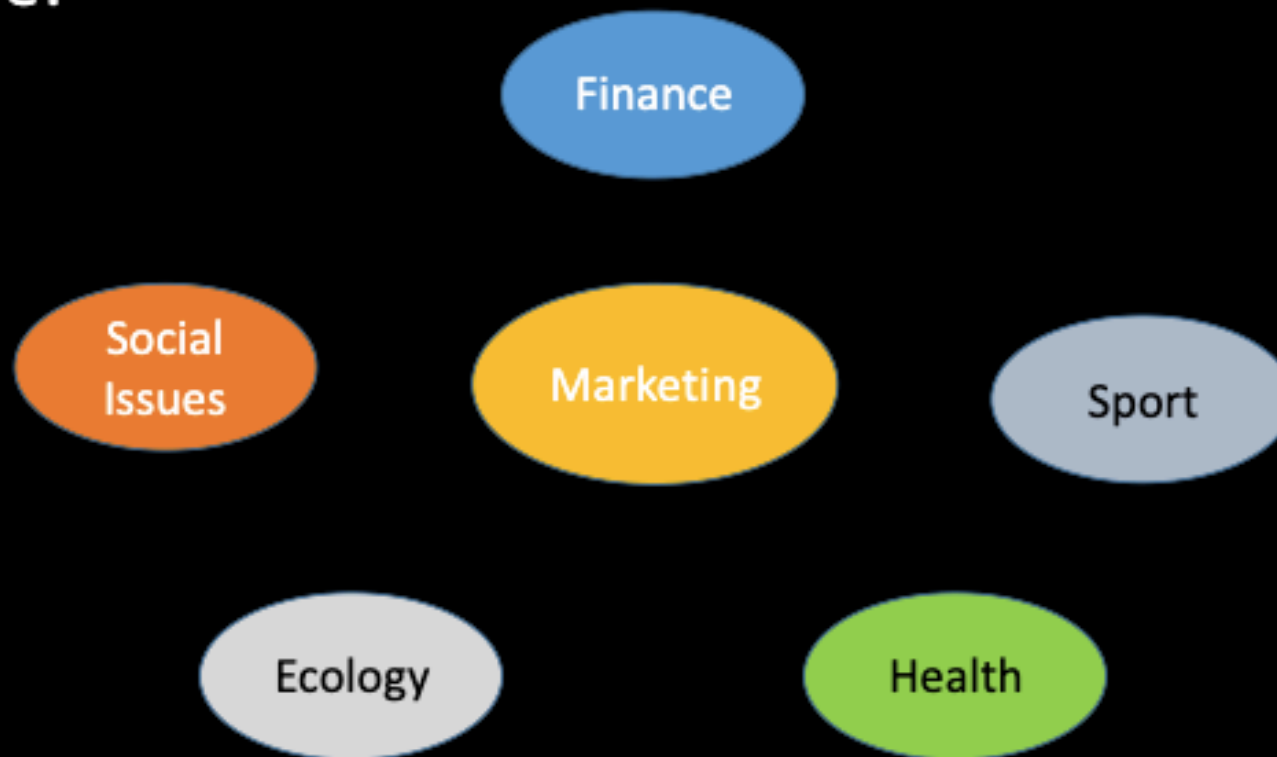
Outline

An outline is a great way to organize your thoughts and research. You can payout the related sub-topics branch out from the main topic. You can extend the sub-topics into many levels.

Creating an outline helps you to narrow a topic and identify possible problems for further study.

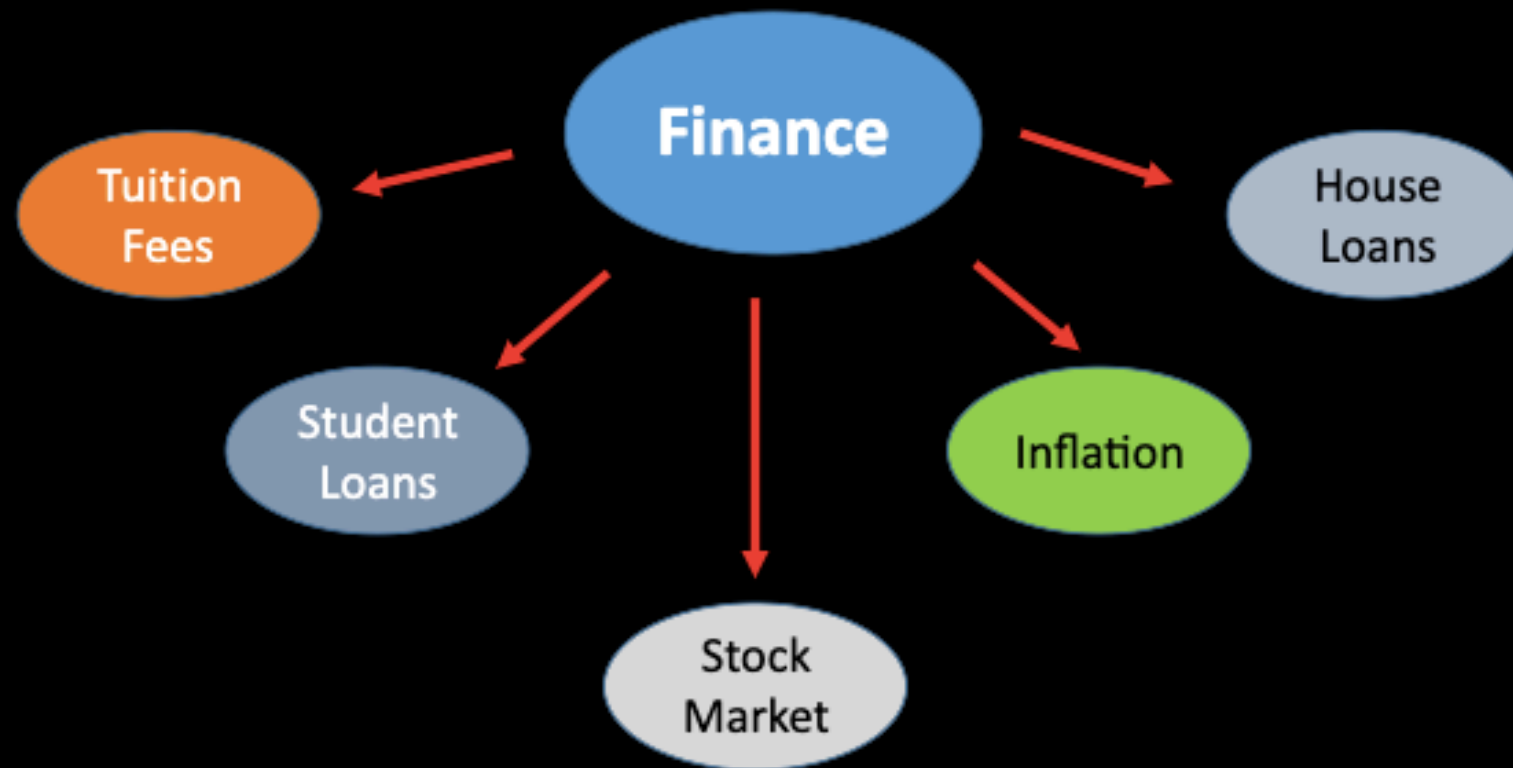
Outline – Example

Big Picture!



Outline – Example

Now you can identify and refine a problem



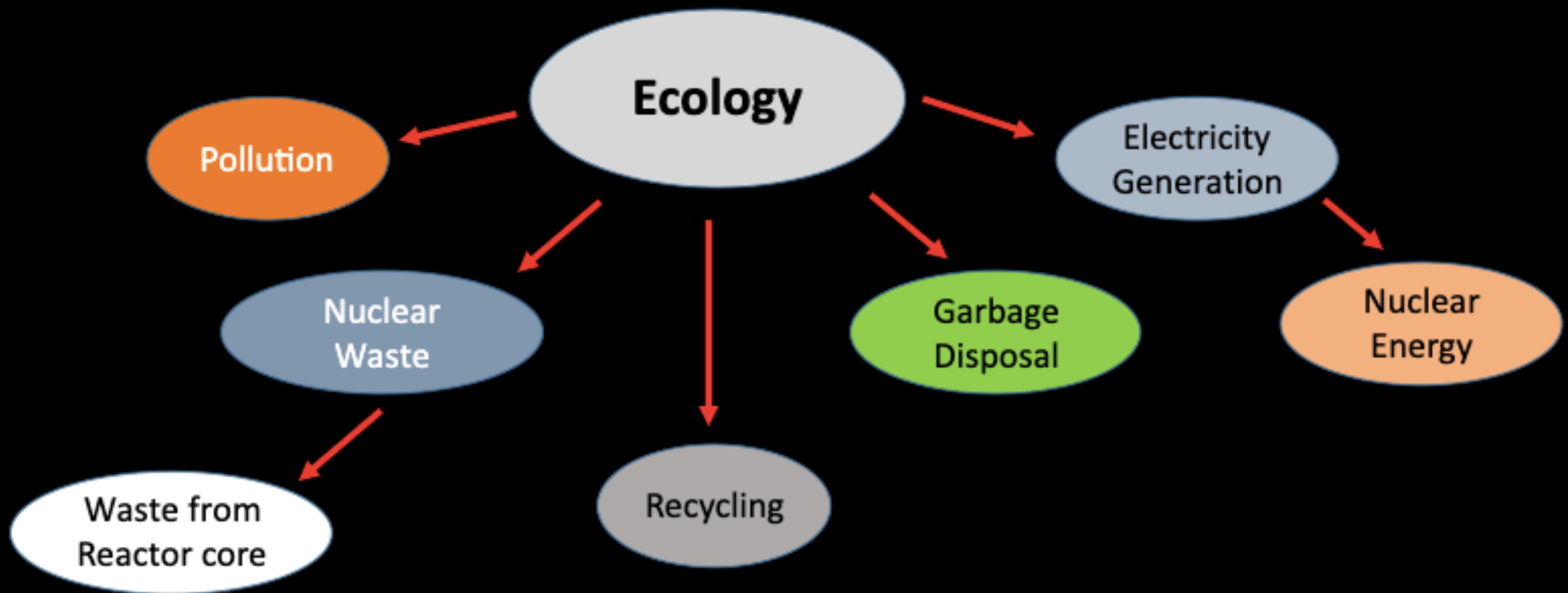
Outline – Example

Now you can identify and refine a problem



Outline – Example

Now you can identify and refine a problem



Remember!

Creating an outline helps you to narrow a topic and identify possible problems. You need to evaluate a possible problem using the checklist below.

Your topic should satisfy **ALL** of the following:

1. Be a significant problem of interest to you.
2. Involve the collection of a large amount of data (500-1000 data values).
3. Involve the organization of a large amount of data.
4. Involve the analysis of a large amount of data.
5. Allow the use of technology (e.g. Excel and PowerPoint).
6. Allow the use of diagrams



Generate a Question



Before you proceed to pick a topic. Let's have a look at some of the related questions which will guide you to choose the right topic.

I have provided some sample questions based on the following categories. Please remember you should create your own questions based on the topic that interests you.

1. Health
2. Crime
3. Food consumption
4. Technology use
5. Budgeting and Economic Issues
6. Transportation
7. Travel and Tourism

Health



1. Dieting, body weight, and eating disorders

- How do students feel about their body weight, body image as a function of age, sex, and country?
- Do Canadian students have a healthier diet than students from other countries?

2. Teenage pregnancies and abortions

- How are trends changing over time?
- How does Canada compare to other countries?

3. Do Canadian students exercise more or less than students from other countries?

- What is the frequency of exercise of Canadian students by age and gender?
- How is the pattern different for boys and girls? Does it change with age?

Health

4. Teenage smoking vs. lung cancer and factors affecting smoking

- Smoking habits among teenagers by age and gender.
- Health risks of cigarettes.

5. Alcohol Consumption

- Trend over the years in consumption.
- Alcohol consumption by age, gender, education, geographic area.
- Is alcohol consumption related to the age, of Canadians?
- What is the month of highest beer sales? And why?



Crime

1. Number of males vs. female offenders in Canada.
2. What variables correlate with youth crime?
3. What variables correlate with crime?
4. Homicides with guns in relation to total firearm sales.
5. Is drinking and driving on the increase in Toronto?



Food Consumption

1. Who is winning the battle - butter or margarine?
2. Which meats are being eaten more and less by Canadians?
3. How does the average food consumption in Canada compare with that in the United States?
4. What are the most popular foods?
5. What are the major factors that may influence the rate of diabetes?
6. Does socioeconomic status affect obesity rates?



MEAT



SEAFOOD



FRUIT



VEGETABLE



HERBS/SPICES



DAIRY



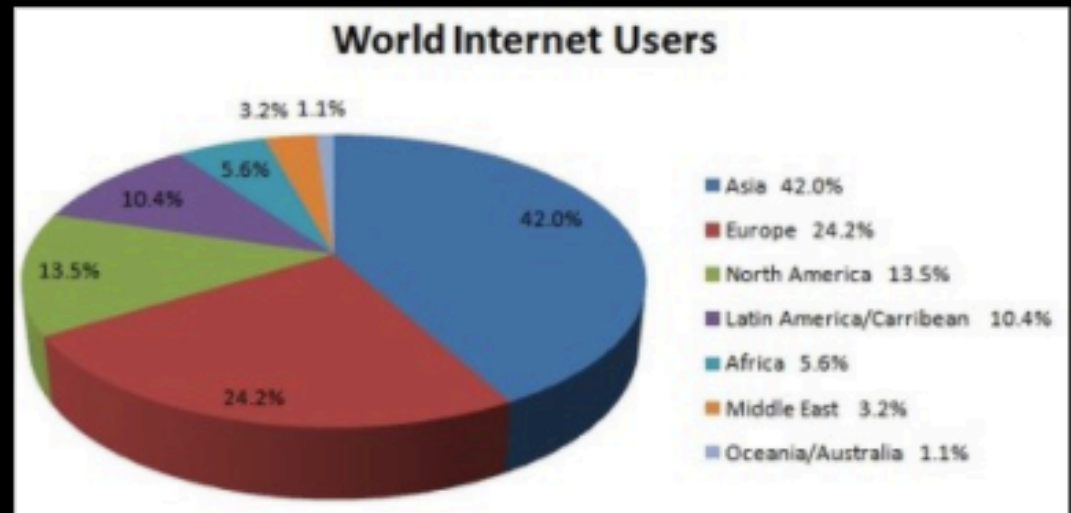
NUTS/SEEDS



GRAINS

Technology Use

1. How does the use of the Internet vary with education, gender, income, and age?
2. How is the Internet being used by young people?



Budgeting and Economic Issues

1. Changes in the cost of living.
2. Changes in income and work patterns of teenagers.
3. Which occupations need more people?
4. What are the highest and lowest paid occupations in Canada - and is this changing over time?



Budgeting and Economic Issues

5. Are females catching up to males in terms of average income?
6. How much is spent on clothing, eating out, and entertainment? Compare expenses with other households in same age or income bracket.
7. Is there a relationship between how students feel about school and school performance?
8. What variables correlate highly with school performance?

Transportation



1. Motor vehicle accidents vs. cars on the road.
2. Car safety trends.
3. Correlation between traffic offences, impaired driving, and traffic accidents?
4. Changes in the number of motor vehicle deaths and possible explanations (use of seat belts, speed limits, driving instruction, quality of roads).

Travel and Tourism



1. Changes and trends in the recreation habits of Canadians.
2. Canadians' travel choices -what influences them?
3. Is there a correlation between Canadian and American currency values and the relative number of tourist visits to both countries?

What's next?



Now that you have the idea of the topic, its time to find the data based on the topic of your interest.

In the next learning activity, I have provided different websites which have the list of projects and data. That learning activity will guide you how to look for a topic where there is data available.

If you still are confused or having trouble about choosing the topic. Please contact your teacher, who can assist you.