

Nanyang Technological University  
Semester 1, 2020-2021  
MSc Information Systems  
**CI6206 Internet Programming  
Technology Research Paper**

**Description**

Technology Paper research-based activity with focus on Web 2.0/social computing technologies as well as some of the web development techniques available. The list of topics is given below. Instructions for selection of topics are in the next section. Technology research will constitute **20%** of the overall course grade.

**Research guidelines**

1. The approach to adopt is a “Web developer’s guide” to your chosen topic. That is, your audience will be Web developers interested in learning about your topic for the purposes of implementing it in their workplaces or other projects. See the respective topics on the next page for some suggestions on areas to cover. In addition, your research papers could also include demonstrations, tutorials, code examples, etc.
2. Report should be between 8-12 pages (Est ~3000 words) – Quality over Quantity.
3. Students are to provide a list of references used in the research.
4. Deadline for the submission of the research paper is **31 Oct 2020**.

**Grading will be based on**

1. Comprehensiveness of coverage – 40%
  - a. Recommended to perform both breadth(wider coverage) and depth (deeper) research
2. Relevance of content to developers – 30%
3. Provide demos and codes examples – 20%
4. References – 5%
5. Report Formatting – 5%

**Note**

- Please do no plagiarise work produced by your friends.
- It is important to note that plagiarism is an academic offence that is taken very seriously by the University, as stated in the NTU Code of Student Conduct.

## List of Topics

Each topic comes with a suggested list of areas to cover:

1. Extending your web application capabilities
  - Introduction to various types of useful ‘web services’ that could be integrated to your web application such as SMS, Payment services, editors etc.
  - Investigate the tools and discuss they could be integrated to your web application.
  - Provide a short demo.
2. Social networking systems
  - Short introduction to social networking and open source social networking systems
  - APIs offered by social networking systems (e.g. Facebook etc)
  - Demonstrate how to use the APIs with some sample codes
3. Source code version control and social code sharing
  - Introduction to version control and its importance in team-based software development
  - List and recommend effective tools for version control.
  - Demonstrate to use of such a tool.
4. Cloud computing
  - Cloud platform that supports JAVA.
  - Deploying your application into the clouds.
  - Describe the various types of cloud suitable for open source project.
  - Clouds that are suitable Java web application.
5. Google API/Maps/Analytics
  - Introduction to google api and its map capabilities.
  - Describe key features of the tools and provide demonstration if any.
  - Show some example code and how it can be use for web application.
  - Map controls, custom controls, map types etc.
  - Google Web analytics
6. 3D Web
  - Present the various technologies on 3D API.
  - Describe potential of those API and how they can be used.
  - Provide example code and demonstrations of Web 3D API, Three.js etc.
  - Capabilities of 3D in HTML5.
  - Integration with website and their key advantages.
7. Authentication techniques
  - Present various types of authentication techniques
  - Describe how the techniques work (related to web-application)
  - Provide example code and demonstration of the authentication techniques (etc apt)

8. Bot attack on web application
  - Various types of Bot attack
  - Bad bot vs Good bots
  - Preventive measures