Singapore Polytechnic
School of Media and Info-Communications Technology
Diploma in Information Technology
Diploma in Infocomm Security Management

Cloud and Service Development (ST0280)
Assignment: **Creating and Consuming Web API (Restful Service)**

Instructions

1. This is an individual assignment.
2. You should finish your assignment and submit your documentation before 10:00 pm on 23 June 2019 **(Sunday)**

3. You are required to demonstrate your skills and capability in design and implementation of Web API, and consuming the Web API.

4. An interview session will be done at the end of the assignment. No mark will be awarded if you did not attend the interview session.

*[{item1:**Your project source code}, {item2: documentation for POST Man testing and sequence diagram}]**

Task	Description	**Marks**	**Deliverables***
Task 1	Practical 1 Task D Implement the same function using Jquery AJAX	**10**	1. Demo 2. Draw a diagram and show the difference between invoking web service using C# and JQuery

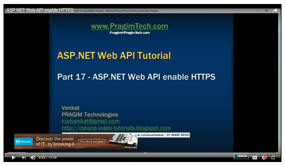
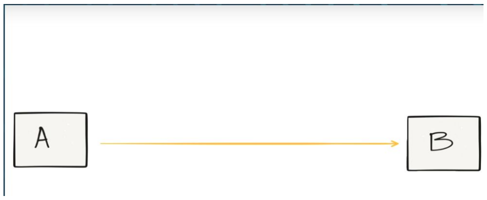
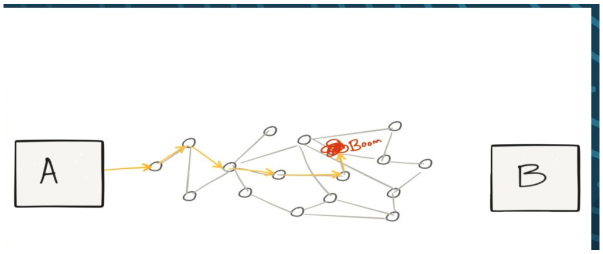
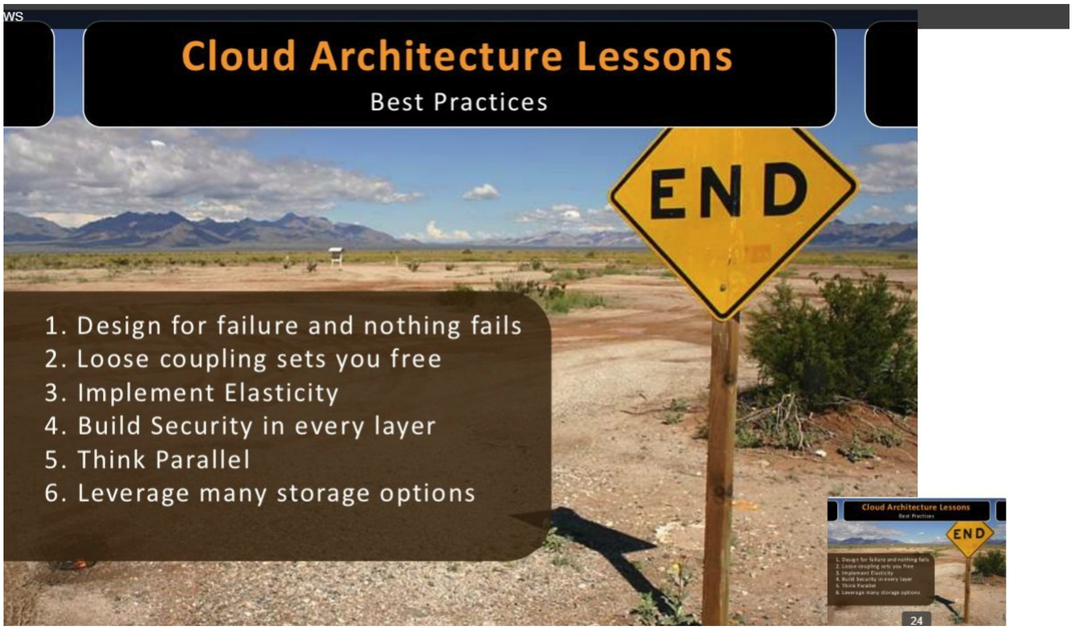
Task 2	Practical 2 Part 2 Enable CRUD operations in ASP.NET Web API Practical 3 Part 1 Validate WEB API Input using Annotation	**10**	1.Demo 2. Web API document and Source code 3. Postman testing screenshot
Task 3	Web Api 2 Security Authentication and Authorization using Bearer Token	**10**	1.Demo 2. Web API document and Source code 3. PostMan testing result
Task 4	**Talents Search**	**20**	1.Demo 2. Web API document and Source code 3. PostMan testing result
Task 5	**Secured Talent Search Web API (Protect data at rest , data in Transit and ~~data under proccessing~~)**  ASP.NET Web API enable HTTPS www.PragimTech.com Pragim@PragimTech.com ASP.NET Web API Tutorial Part 17 - ASP.NET Web API enable HTTPS Venkat PRAGIM Technologies kudvenkat@gmail.com http://csharp-video-tutorials.blogspot.com	**10**	1.Demo 2. Web API document and Source code 3. POstMan testing result
Task 6	**Elearnign week Payment web API (STRIPE)** **Store talents**	**10**	**Demo Sequence diagram**

	photo in AWS S3 **Get AWS Educate Account**		
Task 7(optional)	**Develop a web/mobile client to allow user to upload an image and tag the image by calling web service from Clarifai**	**10**	**Demo** **Source code**
Others	**Understanding, efficiency, robustness and security of the code ****	**20**	

**Notes:
Web API **latency** should be simulated and AJAX loading Gif should be displayed to users.

In case of network/server **failure**, your application should be able to detect and recover from the errors(**RE-TRY**).

	
Internet is a jungle ⇒ Anything could fail ==>Design for failure⇒ nothing really fails	

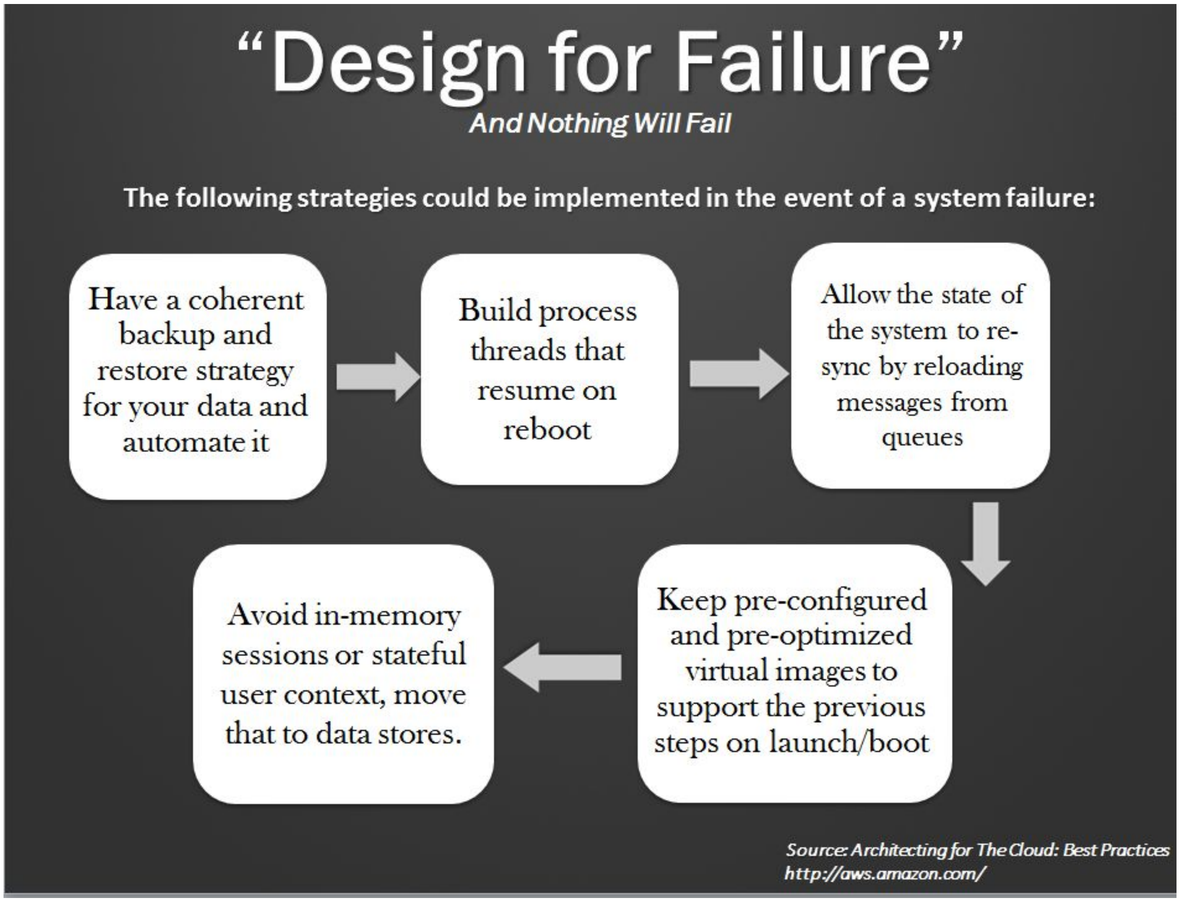


Cloud Architecture Lessons

Best Practices

1. Design for failure and nothing fails
2. Loose coupling sets you free
3. Implement Elasticity
4. Build Security in every layer
5. Think Parallel
6. Leverage many storage options

https://www.youtube.com/watch?v=MmsAYrXxbs0



“Design for Failure”

And Nothing Will Fail

The following strategies could be implemented in the event of a system failure:

Have a coherent backup and restore strategy for your data and automate it → Build process threads that resume on reboot → Allow the state of the system to re-sync by reloading messages from queues → Keep pre-configured and pre-optimized virtual images to support the previous steps on launch/boot → Avoid in-memory sessions or stateful user context, move that to data stores.

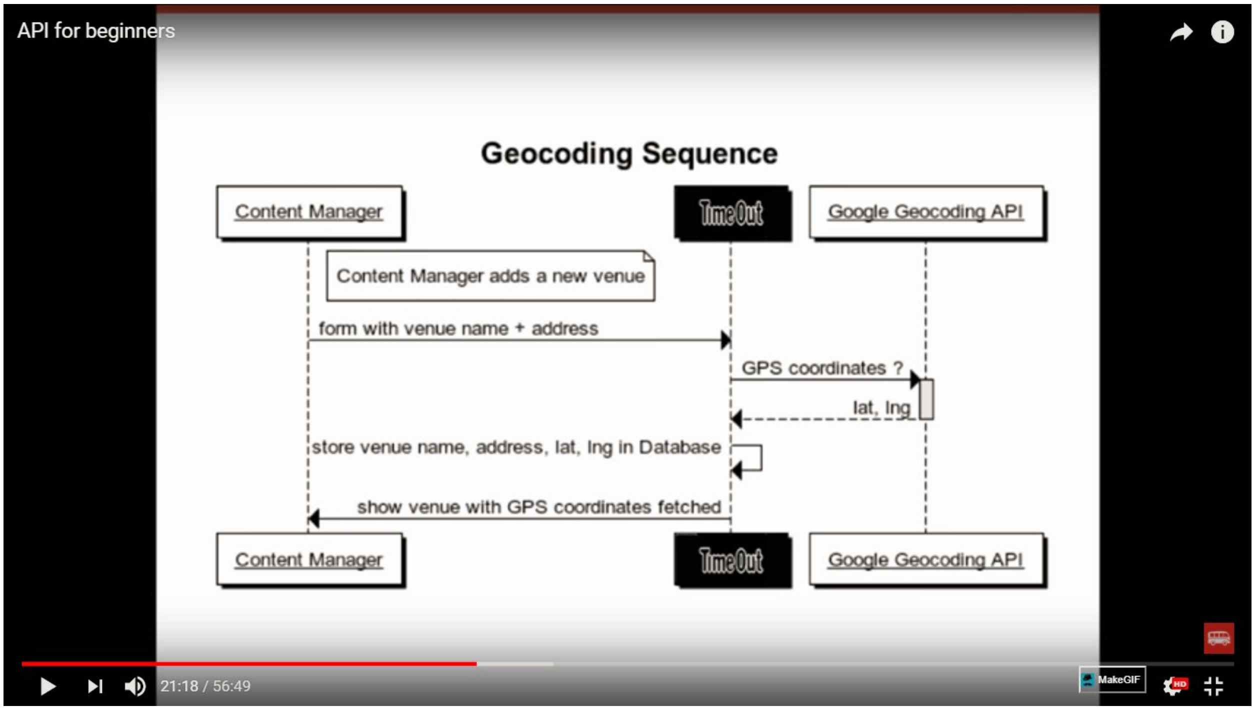
Source: Architecting for The Cloud: Best Practices
http://aws.amazon.com/

Need to submit a **hardcopy** of your documentation during interview session in week 2 (term 2).

Appendix

Sample Sequence Diagram
TimeOut App calling Google Gecoding API

https://maps.googleapis.com/maps/api/geocode/json?address=1600+Amphitheatre+Parkway,+Mountain+View,+CA&key=YOUR_API_KEY



Geocoding Sequence

Content Manager

TimeOut

Google Geocoding API

Content Manager adds a new venue

form with venue name + address

GPS coordinates ?

lat, lng

store venue name, address, lat, lng in Database

show venue with GPS coordinates fetched

Content Manager

TimeOut

Google Geocoding API