Instructions:

- This is an open-book and open-Internet quiz
- You are free to look up any information from the lecture notes or labs, as well as the Internet
- When you are done, submit your report before 4 pm to the appropriate LumiNUS folder: Quiz 2 Group X

1. Copy the following text to your report, and insert your name, signature, and the date:

Academic Integrity Declaration

a. **I am aware of, and will abide by the NUS Code of Student Conduct (in particular the part on Academic, Professional and Personal Integrity as shown below) when attempting this assessment.**

Academic, Professional and Personal Integrity

i. *The University is committed to nurturing an environment conducive for the exchange of ideas, advancement of knowledge and intellectual development. Academic honesty and integrity are essential conditions for the pursuit and acquisition of knowledge, and the University expects each student to maintain and uphold the highest standards of integrity and academic honesty at all times.*

ii. *The University takes a strict view of cheating in any form, deceptive fabrication, plagiarism and violation of intellectual property and copyright laws. Any student who is found to have engaged in such misconduct will be subject to disciplinary action by the University.*

iii. *It is important to note that all students share the responsibility of protecting the academic standards and reputation of the University. This responsibility can extend beyond each student's own conduct, and can include reporting incidents of suspected academic dishonesty through the appropriate channels. Students who have reasonable grounds to suspect academic dishonesty should raise their concerns directly to the relevant Head of Department, Dean of Faculty, Registrar, Vice Provost or Provost.*

b. **I have read and understood the rules of the assessments as stated below.**

i. *Students should attempt the assessments on their own. There should be no discussions or communications, via face to face or communication devices, with any other person during the assessment.*

ii. *Students should not reproduce any assessment materials, e.g. by photography, videography, screenshots, or copying down of questions, etc.*

c. **I understand that by breaching any of the rules above, I would have committed offences under clause 3(l) of the NUS Statute 6, Discipline with Respect to Students which is punishable with disciplinary action under clause 10 or clause 11 of the said statute.**

i. Any student who is alleged to have committed or attempted to commit, or caused or attempted to cause any other person to commit any of the following offences, may be subject to disciplinary proceedings:

1. plagiarism, giving or receiving unauthorised assistance in academic work, or other forms of academic dishonesty.

Name: _____ Signature: _____ Date: _____

2. Take a screenshot listing the information on your cluster from your EC2 instance:

```
[ec2-user@ip-54.169.221.196 ~]$ pcluster describe-cluster-instances
--region ap-southeast-1 --cluster-name MyCluster01
```

Include the screenshot in your report. Include also a screenshot of the cluster config file you used to create the cluster.

Do the following from your cluster to show that your queue is empty:

```
(env1) [ec2-user@ip-10-0-0-26 ~]$ date
(env1) [ec2-user@ip-10-0-0-26 ~]$ squeue
(env1) [ec2-user@ip-10-0-0-26 ~]$ date
```

Take a screenshot showing the output of the commands above, and include it in your report.

3. Double check that your /data/picasso directory looks like this:

```
(env1) [ec2-user@ip-10-0-0-26 ~]$ ls /data/picasso
20181101  envlist.hkl  envlist.khl.lock  geom.csv  sort.sh.txt
```

The DataProcessingTools and pyedfread repositories have been installed in the env1 conda environment so you do not need to reinstall them.

4. We would like to create low-frequency and high-frequency cumulative FreqSpectrum objects for **only** the channels in the **session01/array02** subdirectory.

5. Create a slurm script (rpllfpfs-slurm.sh) that will create RPLLFP objects with the following arguments:

```
pyh.RPLLFP(saveLevel=1,lowFreq=0.1,highFreq=250);
```

as well as FreqSpectrum objects with the following arguments:

```
pyh.FreqSpectrum(saveLevel=1);
```

Include a screenshot of the rpllfpfs-slurm.sh script in your report.

6. Create a second slurm script (rplhpfs-slurm.sh) that will create RPLHighPass objects with the following arguments:

```
pyh.RPLHighPass(saveLevel=1,lowFreq=250,highFreq=5000);
```

as well as FreqSpectrum objects with the following arguments:

```
pyh.FreqSpectrum(saveLevel=1,loadHighPass=True,pointsPerWindow=3000);
```

Include a screenshot of the rplhpfs-slurm.sh script in your report.

7. Create a third slurm script (fsall-slurm.sh) that will create cumulative objects containing the low-frequency and high-frequency spectrum of only the channels in "session01/array02". Include a SNS notification so you will receive an email notification when the job is completed.

   Include a screenshot of the fsall-slurm.sh script in your report.

8. Create a shell script (consol_fsjobs.sh) that will run "fsall-slurm.sh" once all the FreqSpectrum jobs have been completed.

   Include a screenshot of the consol_fsjobs.sh script in your report.

9. Use the scripts created above to generate the FreqSpectrum objects for **only** the channel directories in the **session01/array02** subdirectory, as well as the two cumulative objects.

   Include a screenshot of the commands you used to create the objects in your report. Include also the email notification that you received.

10. Copy the saved objects to your computer.

    Include a screenshot of the commands you used in your report.

11. Use Spyder to load and plot the objects by array.

    Include a screenshot of the array plot for the low-frequency and high-frequency spectrum objects in your lab report.

12. Submit your report to LumiNUS Quiz 2 Group X (in PDF format only, and name the file Quiz2_YourName.pdf):
    a) Screenshots from Step 2
    b) Screenshot from Step 5
    c) Screenshot from Step 6
    d) Screenshot from Step 7
    e) Screenshot from Step 8
    f) Screenshots from Step 9
    g) Screenshot from Step 10
    h) Screenshots from Step 11

13. Wrap Up
    a. Create a snapshot of the cluster used in the quiz
    b. Delete all other snapshots
    c. Delete all clusters (make sure "pcluster list-clusters …" returns empty list)
    d. Terminate all EC2 instances using AWS Dashboard
    e. Delete CloudWatch Rules
    f. Delete Lambda function