

IN5400 Exam

June 3, 2021

Exercise 1

1a

Answer here!

1b

Answer here!

Exercise 2

2a

Answer here!

2b

Answer here!

Exercise Example

Citations: [1] [2]

$$\mathbf{z} = \mathbf{a}\mathbf{w} \tag{1}$$

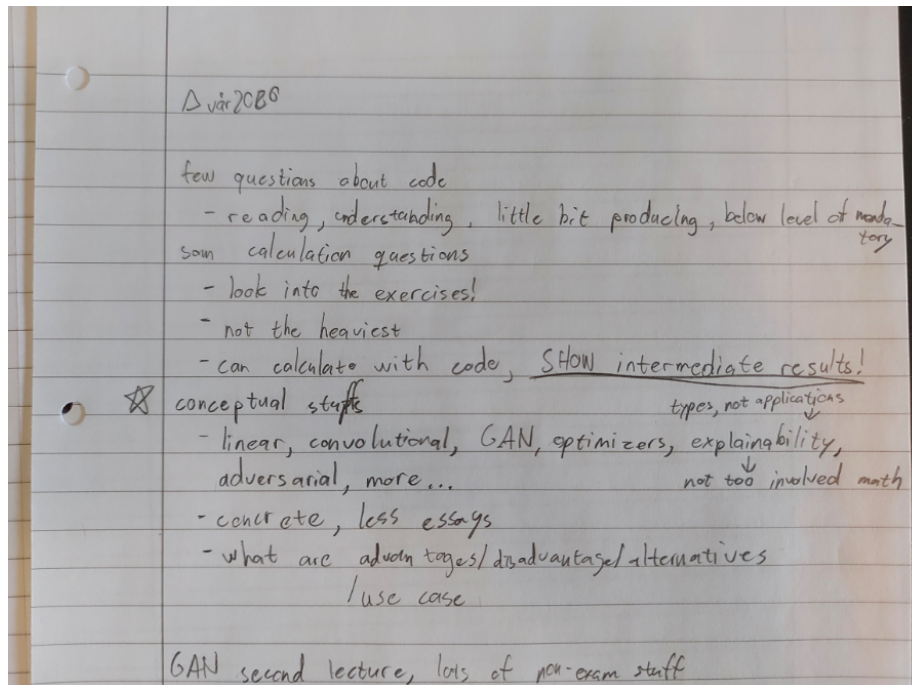


Figure 1: Caption text.

```

1  def loss(model, x, t):
2      with tf.GradientTape() as tape_x2:
3          tape_x2.watch([x])
4          with tf.GradientTape() as tape_x, tf.GradientTape() as tape_t:
5              tape_x.watch([x])
6              tape_t.watch([t])
7              g_trial = (1 - t) * sin(pi * x) + x * (1 - x) * t * N(x,t])
8
9              dg_dx = tape_x.gradient(g_trial, x)
10             dg_dt = tape_t.gradient(g_trial, t)
11
12             dg_d2x = tape_x2.gradient(dg_dx, x)
13
14             return tf.losses.mean_squared_error(zeros, dg_d2x - dg_dt)

```

References

- [1] S. Zanoli et al. "Harmonic Potential Theorem: Extension to Spin-, Velocity-, and Density-Dependent Interactions". In: *Physical Review Letters* 123.11

- (Sept. 2019). ISSN: 1079-7114. DOI: [10.1103/physrevlett.123.112501](https://doi.org/10.1103/physrevlett.123.112501).
URL: <http://dx.doi.org/10.1103/PhysRevLett.123.112501>.
- [2] C. David Sherrill. *An Introduction to Hartree - Fock Molecular Orbital Theory*, (<http://vergil.chemistry.gatech.edu/courses/chem6485/pdf/hf-intro.pdf> (accessed 01.06.2021)). 2000.