# Exercise 10, extra

**7.12.2021**

## #1 Analytic Hierarchy Process (AHP)

Consider a DM who is using AHP to help her choose a phone. She considers three alternative phones (A, B, and C) with respect to three criteria (price, features, and memory). The pairwise comparison matrices are:

| | Price | | |
|---|---|---|---|
| | A | B | C |
| A | 1 | 4 | 2 |
| B | ¼ | 1 | ½ |
| C | ½ | 2 | 1 |

| | Features | | |
|---|---|---|---|
| | A | B | C |
| A | 1 | 1/6 | 1/2 |
| B | 6 | 1 | 4 |
| C | 2 | 1/4 | 1 |

| | Memory | | |
|---|---|---|---|
| | A | B | C |
| A | 1 | 1/9 | 1/2 |
| B | 9 | 1 | 4 |
| C | 2 | 1/4 | 1 |

| | Price | Features | Memory |
|---|---|---|---|
| Price | 1 | 3 | 5 |
| Features | 1/3 | 1 | 2 |
| Memory | 1/5 | 1/2 | 1 |

a) Compute the local priority vectors.

b) Compute the consistency indices of the pairwise comparison matrices. Are the DM's preferences consistent?

c) Compute the total priorities for the three phones. Which phone would you suggest?

d) How do the results change if a replica of A is added to the group of alternatives?