

Sanderas In2010 oblig4 oppgave1b)

Hashset tidsbruk:

```
● Sanders-MacBook-Pro:innlevering4 sanderrasmussen$ time python3 hovedprogram.py < inputs/input_10 | cmp - outputs/output_10
real    0m0.053s
user    0m0.030s
sys     0m0.020s
● Sanders-MacBook-Pro:innlevering4 sanderrasmussen$ time python3 hovedprogram.py < inputs/input_100 | cmp - outputs/output_100
real    0m0.080s
user    0m0.035s
sys     0m0.024s
● Sanders-MacBook-Pro:innlevering4 sanderrasmussen$ time python3 hovedprogram.py < inputs/input_1000 | cmp - outputs/output_1000
real    0m0.069s
user    0m0.045s
sys     0m0.022s
● Sanders-MacBook-Pro:innlevering4 sanderrasmussen$ time python3 hovedprogram.py < inputs/input_10000 | cmp - outputs/output_10000
real    0m1.560s
user    0m1.529s
sys     0m0.035s
● Sanders-MacBook-Pro:innlevering4 sanderrasmussen$ time python3 hovedprogram.py < inputs/input_100000 | cmp - outputs/output_100000
real    2m19.511s
user    2m9.784s
sys     0m1.319s
○ Sanders-MacBook-Pro:innlevering4 sanderrasmussen$
```

AVL tre:

```
eduroam-193-157-238-243:innlevering2 sanderrasmussen$ time java Main inputFiler/input_10.txt outputFiler/output_10.txt
Antall feil : 0
real    0m0.224s
user    0m0.172s
sys     0m0.072s
eduroam-193-157-238-243:innlevering2 sanderrasmussen$ time java Main inputFiler/input_100.txt outputFiler/output_100.txt
Antall feil : 0
real    0m0.187s
user    0m0.185s
sys     0m0.057s
eduroam-193-157-238-243:innlevering2 sanderrasmussen$ time java Main inputFiler/input_1000.txt outputFiler/output_1000.txt
Antall feil : 0
real    0m0.224s
user    0m0.274s
sys     0m0.059s
eduroam-193-157-238-243:innlevering2 sanderrasmussen$ time java Main inputFiler/input_10000.txt outputFiler/output_10000.txt
Antall feil : 0
real    0m1.564s
user    0m1.775s
sys     0m0.075s
eduroam-193-157-238-243:innlevering2 sanderrasmussen$ time java Main inputFiler/input_100000.txt outputFiler/output_100000.txt

```

Input_100000 tok så lang tid å kjøre at jeg valgte å ikke ta den med i beregningen.

Binært søketre (ikke avl):

```
eduroam-193-157-238-243:innlevering2 sanderrasmussen$ time java Main inputFiler/input_10.txt outputFiler/output_10.txt
Antall feil : 0

real    0m0.155s
user    0m0.144s
sys     0m0.050s
eduroam-193-157-238-243:innlevering2 sanderrasmussen$ time java Main inputFiler/input_100.txt outputFiler/output_100.txt
Antall feil : 0

real    0m0.176s
user    0m0.185s
sys     0m0.052s
eduroam-193-157-238-243:innlevering2 sanderrasmussen$ time java Main inputFiler/input_1000.txt outputFiler/output_1000.txt
Antall feil : 0

real    0m0.215s
user    0m0.282s
sys     0m0.055s
eduroam-193-157-238-243:innlevering2 sanderrasmussen$ time java Main inputFiler/input_10000.txt outputFiler/output_10000.txt
Antall feil : 0

real    0m1.294s
user    0m1.411s
sys     0m0.078s
eduroam-193-157-238-243:innlevering2 sanderrasmussen$ time java Main inputFiler/input_100000.txt outputFiler/output_100000.txt
^C
real    6m30.312s
user    6m15.248s
sys     0m1.562s
```

Også her måtte jeg stoppe input_100000 filen fordi den tok for lang tid.

Oppsummering

Vi kan tydelig se at hashset er raskere i alle kategoriene vi testet. Avl treet og det binæret treet hadde ikke stor forskjell i tidsbruk sammenlignet med hashsettet.