DATASET 1

a)

```
seq_1: Bacillus anthracis
seq_2: Clostridium tetani
seq_3: Escherichia coli strain
seq_4: Mycobacterium tuberculosis
seq_5: Pseudomonas aeruginosa
seq_6: Salmonella enterica
seq_7: Staphylococcus aureus
seq_8: Streptococcus pneumoniae
seq_9: Treponema pallidum
seq_10: Vibrio cholerae
```

b) Limitado a 20k chars para questao de desempenho

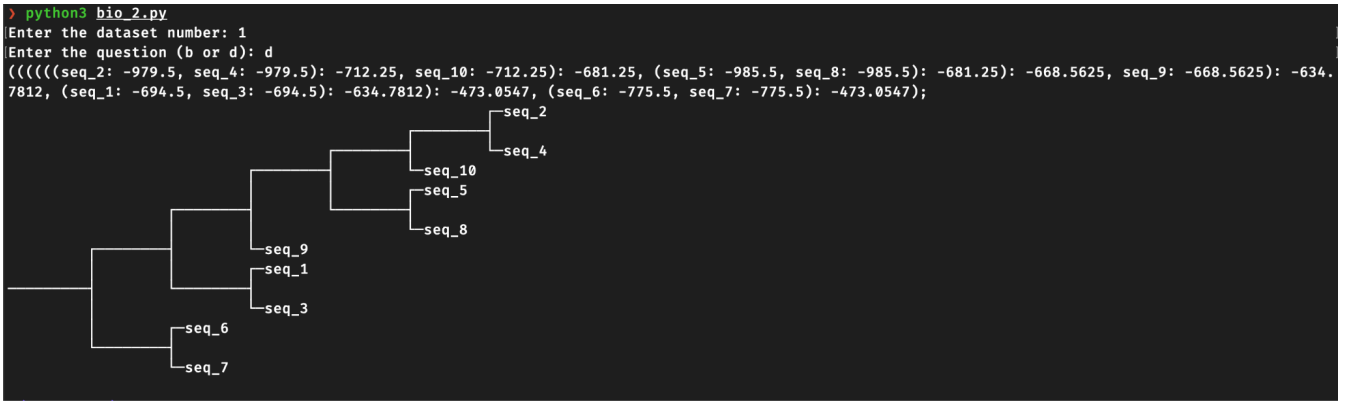
```
seq_1 vs seq_2: -1109
seq_1 vs seq_3: -1389
seq_1 vs seq_4: -1626
seq_1 vs seq_5: -1523
seq_1 vs seq_6: -1529
seq_1 vs seq_7: 1618
seq_1 vs seq_8: -519
seq_1 vs seq_9: -1214
seq_1 vs seq_10: -1298
seq_2 vs seq_3: -1542
seq_2 vs seq_4: -1959
seq_2 vs seq_5: -1939
seq_2 vs seq_6: -1718
seq_2 vs seq_7: -1035
seq_2 vs seq_8: -1193
seq_2 vs seq_9: -1328
seq_2 vs seq_10: -1559
seq_3 vs seq_4: -1263
seq_3 vs seq_5: -1219
seq_3 vs seq_6: -1168
seq_3 vs seq_7: -1449
seq_3 vs seq_8: -1447
seq_3 vs seq_9: -1360
seq_3 vs seq_10: -1241
seq_4 vs seq_5: -751
seq_4 vs seq_6: -1056
seq_4 vs seq_7: -1304
seq_4 vs seq_8: -1713
seq_4 vs seq_9: -1397
seq_4 vs seq_10: -1290
seq_5 vs seq_6: -1042
seq_5 vs seq_7: -1777
```

```
seq_5 vs seq_8: -1971
seq_5 vs seq_9: -1455
seq_5 vs seq_10: -1323
seq_6 vs seq_7: -1551
seq_6 vs seq_8: -1605
seq_6 vs seq_9: -1296
seq_6 vs seq_10: -1257
seq_7 vs seq_8: -751
seq_7 vs seq_9: -1178
seq_7 vs seq_10: -1279
seq_8 vs seq_9: -1237
seq_8 vs seq_10: -1329
seq_9 vs seq_10: -1294
```

c)

	seq_1	seq_2	seq_3	seq_4	seq_5	seq_6	seq_7	seq_8	seq_9	seq_10
seq_1	0	-1109	-1389	-1626	-1523	-1529	1618	-519	-1214	-1298
seq_2	-1109	0	-1542	-1959	-1939	-1718	-1035	-1193	-1328	-1559
seq_3	-1389	-1542	0	-1263	-1219	-1168	-1449	-1447	-1360	-1241
seq_4	-1626	-1959	-1263	0	-751	-1056	-1304	-1713	-1397	-1290
seq_5	-1523	-1939	-1219	-751	0	-1042	-1777	-1971	-1455	-1323
seq_6	-1529	-1718	-1168	-1056	-1042	0	-1551	-1605	-1296	-1257
seq_7	1618	-1035	-1449	-1304	-1777	-1551	0	-751	-1178	-1279
seq_8	-519	-1193	-1447	-1713	-1971	-1605	-751	0	-1237	-1329
seq_9	-1214	-1328	-1360	-1397	-1455	-1296	-1178	-1237	0	-1294
seq_10	-1298	-1559	-1241	-1290	-1323	-1257	-1279	-1329	-1294	0

d)



Dataset 2

a)

```
seq_1: Streptococcus agalactiae
seq_2: Neisseria gonorrhoeae
seq_3: Mycobacterium tuberculosis
seq_4:  Staphylococcus aureus
seq_5: Treponema pallidum
seq_6: Bacillus anthracis
seq_7: Yersinia pestis
seq_8: Acinetobacter baumannii
seq_9: Pseudomonas aeruginosa
seq_10: Helicobacter pylori
```

b)

```
seq_1 vs seq_2: -25
seq_1 vs seq_3: -14
seq_1 vs seq_4: -16
seq_1 vs seq_5: -16
seq_1 vs seq_6: -12
seq_1 vs seq_7: -24
seq_1 vs seq_8: -21
seq_1 vs seq_9: -28
seq_1 vs seq_10: -11
seq_2 vs seq_3: -18
seq_2 vs seq_4: -26
seq_2 vs seq_5: -23
seq_2 vs seq_6: -25
seq_2 vs seq_7: -14
seq_2 vs seq_8: -19
seq_2 vs seq_9: -9
seq_2 vs seq_10: -24
seq_3 vs seq_4: -23
seq_3 vs seq_5: -12
seq_3 vs seq_6: -16
seq_3 vs seq_7: -13
seq_3 vs seq_8: -31
seq_3 vs seq_9: -7
seq_3 vs seq_10: -20
seq_4 vs seq_5: -24
seq_4 vs seq_6: -9
seq_4 vs seq_7: -18
seq_4 vs seq_8: -22
seq_4 vs seq_9: -33
```

```
seq_4 vs seq_10: -12
seq_5 vs seq_6: -16
seq_5 vs seq_7: -5
seq_5 vs seq_8: -17
seq_5 vs seq_9: -5
seq_5 vs seq_10: -15
seq_6 vs seq_7: -17
seq_6 vs seq_8: -25
seq_6 vs seq_9: -25
seq_6 vs seq_10: -24
seq_7 vs seq_8: -25
seq_7 vs seq_9: -14
seq_7 vs seq_10: -14
seq_8 vs seq_9: -33
seq_8 vs seq_10: -15
seq_9 vs seq_10: -22
```

c)

	seq_1	seq_2	seq_3	seq_4	seq_5	seq_6	seq_7	seq_8	seq_9	seq_10
seq_1	0	-25	-14	-16	-16	-12	-24	-21	-28	-11
seq_2	-25	0	-18	-26	-23	-25	-14	-19	-9	-24
seq_3	-14	-18	0	-23	-12	-16	-13	-31	-7	-20
seq_4	-16	-26	-23	0	-24	-9	-18	-22	-33	-12
seq_5	-16	-23	-12	-24	0	-16	-5	-17	-5	-15
seq_6	-12	-25	-16	-9	-16	0	-17	-25	-25	-24
seq_7	-24	-14	-13	-18	-5	-17	0	-25	-14	-14
seq_8	-21	-19	-31	-22	-17	-25	-25	0	-33	-15
seq_9	-28	-9	-7	-33	-5	-25	-14	-33	0	-22
seq_10	-11	-24	-20	-12	-15	-24	-14	-15	-22	0

d)