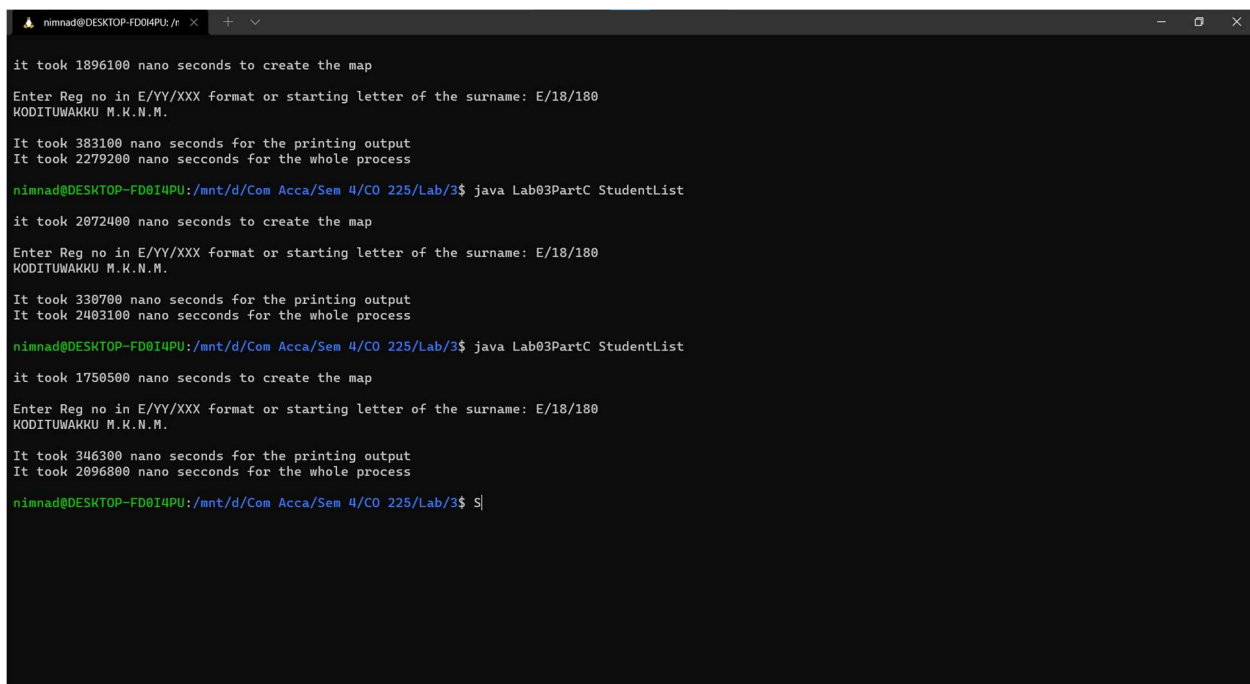# Co 225 – Lab 03 – Part C

E/18/180 – Kodituwakku M.K.N.M.

• Lab03PartC.java was implemented by using Map

• Lab03PartD.java was implemented by using List

• Lab03PartE.java was implemented by using Set

Running times

Part C-Map

When inputting a E-number

When inputting a letter

- A Map is an object that maps keys to values. A map cannot contain duplicate keys: Each key can map to at most one value. It models the mathematical function abstraction.

Part D-List

When inputting a E-number

When inputting a letter

- List in Java provides the facility to maintain the ordered collection. It contains the index-based methods to insert, update, delete and search the elements. It can have the duplicate elements also.

Part E-Set

When inputting a E-number

When inputting a letter

- The set is an interface available in the java.util package. The set interface extends the Collection interface. An unordered collection or list in which duplicates are not allowed is referred to as a collection interface. The set interface is used to create the mathematical set. The set interface use collection interface's methods to avoid the insertion of the same elements.

Conclusion

Calculating average times using above results.

1. Time to insert data into different data instructions

Trial	Making time in nanoseconds		
	Map	List	Set
1	1896100	2101700	2149400
2	2072400	1870600	2184200
3	1750500	2219200	2203500
4	1865700	1998000	2104400
5	1956700	2226200	2037600
6	1817400	2250700	2063700
Avg. Time	1893133.333	2111066.667	2123800

- From above results inserting data into map is faster than other two.

2. Time taken by two operations in different data structures

Trial	Map		List		Set	
	Enum as input	Letter as input	Enum as input	Letter as input	Enum as input	Letter as input
1	383100	22294600	291900	18633400	404100	17702800
2	330700	19008900	397500	19923900	392100	18579600
3	346300	22453300	351500	19527300	474000	19720000
Avg. Time	353366.6667	21252266.67	346966.6667	19361533.33	423400	18667466.67
Overall Avg. Time	10802816.67		9854250		9545433.333	

From the results we can obtain that functionality is fast is Set implementation.