

Distributed Operating System Project

Group Members-

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Steps to compile and run-

1. The name of project is proj1
 2. Go inside the directory by - `cd proj1`
 3. Then to compile the project, type - `mix compile`
 4. Finally, to run the project, type- `mix run proj1.exs arg1 arg2`
-

At the end of this file we have put some screenshots of **graph of schedulers performance** using -> `:observer.start`

1. We have made 100 workers. Work is equally divided among 100 workers.

So, the work unit that a worker gets from supervisor is $\text{floor}(N/100)$.

We ran multiple cases with 4, 8, 100, 500, 1000 workers. In the case, in which we have used 100 workers, scheduler optimization was maximum(70% - 80%). That's why we used 100 workers.

For input (1000000,4)- each worker gets a work unit size of 10000 subproblems.

2. Result of `mix run proj1.exs 1000000 4` is null.

It does not return any value.

3. Result of mix run proj1.exs 1000000 4 is :

real- 0.441s

user- 0.899s

sys- 0.082s

ratio= 2.2244

4. We have solved following problems (d) is the biggest problem) :

a) input-(10^7 ,24)

real- 1.664s

user- 5.216s

sys- 0.113s

Ratio= 3.20

b) input-(10^8 ,24)

real- 5.378s

user- 18.475s

sys- 0.141s

Ratio= 3.46

c) input-(10^8 ,4)

real- 5.402s

user- 16.730s

sys- 0.210s

Ratio= 3.13

d) input-(10^9 ,4)

real- 6.027s

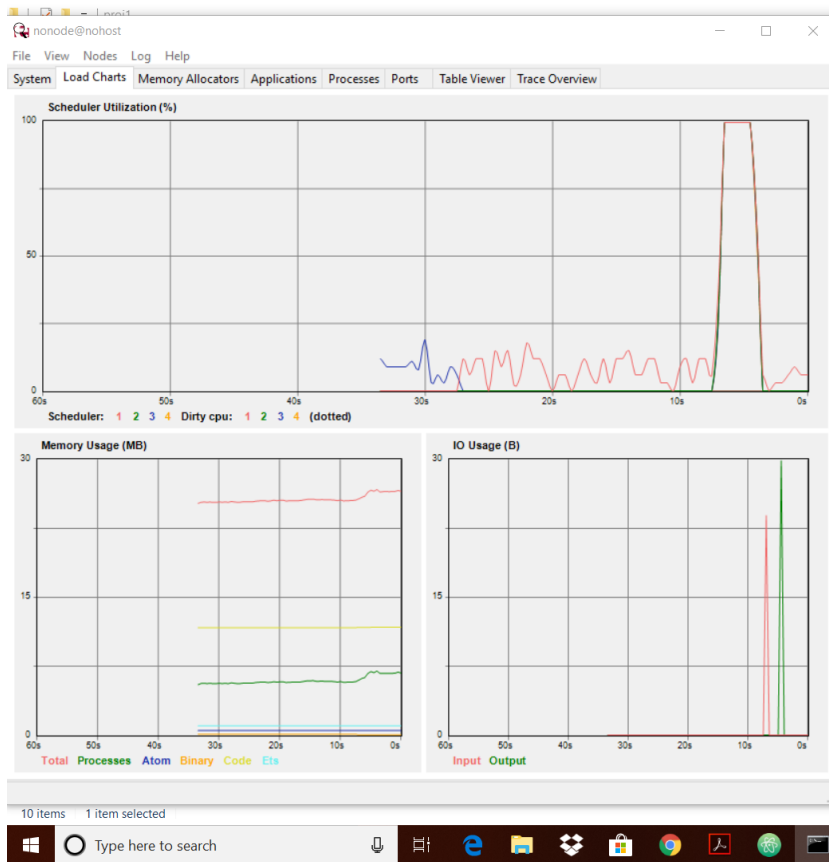
user- 21.379s

sys- 0.170s

Ratio= 3.57

Scheduler performance-

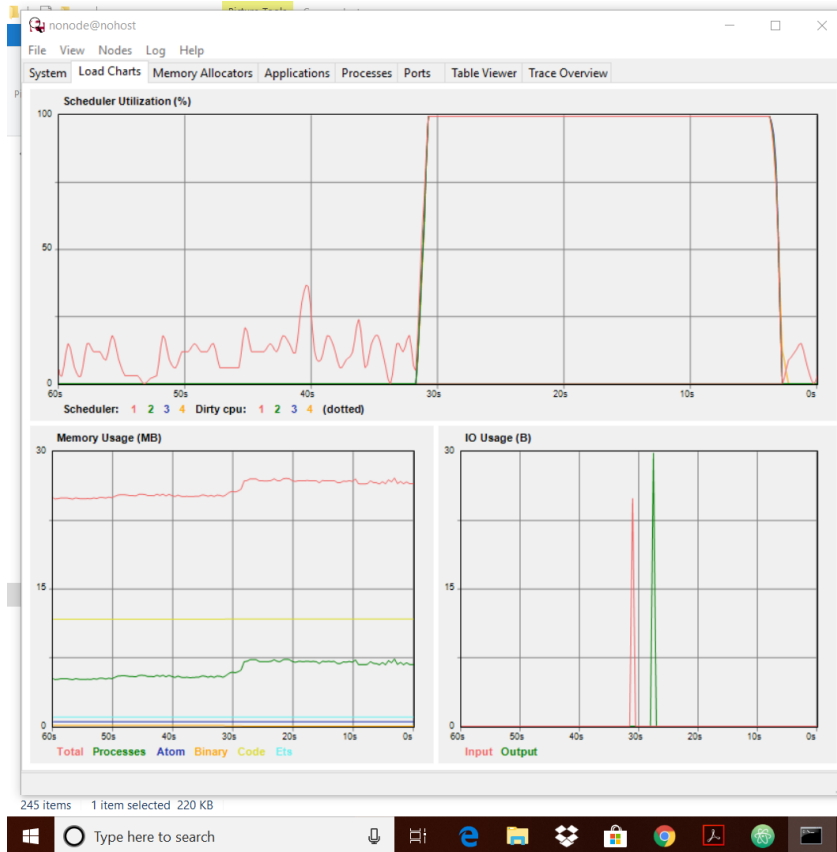
Case 1- Input: (10000000,4)



```
C:\Windows\System32\cmd.exe - iex -S mix
Microsoft Windows [Version 10.0.17134.228]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Aditya\Documents\test\proj1>iex -S mix
Interactive Elixir (1.7.3) - press Ctrl+C to exit (type h() ENTER for help)
iex(1)> :observer.start
:ok
iex(2)> Proj1.start(10000000,4)
{:ok, #PID<0.1768.0>}
iex(3)>
```

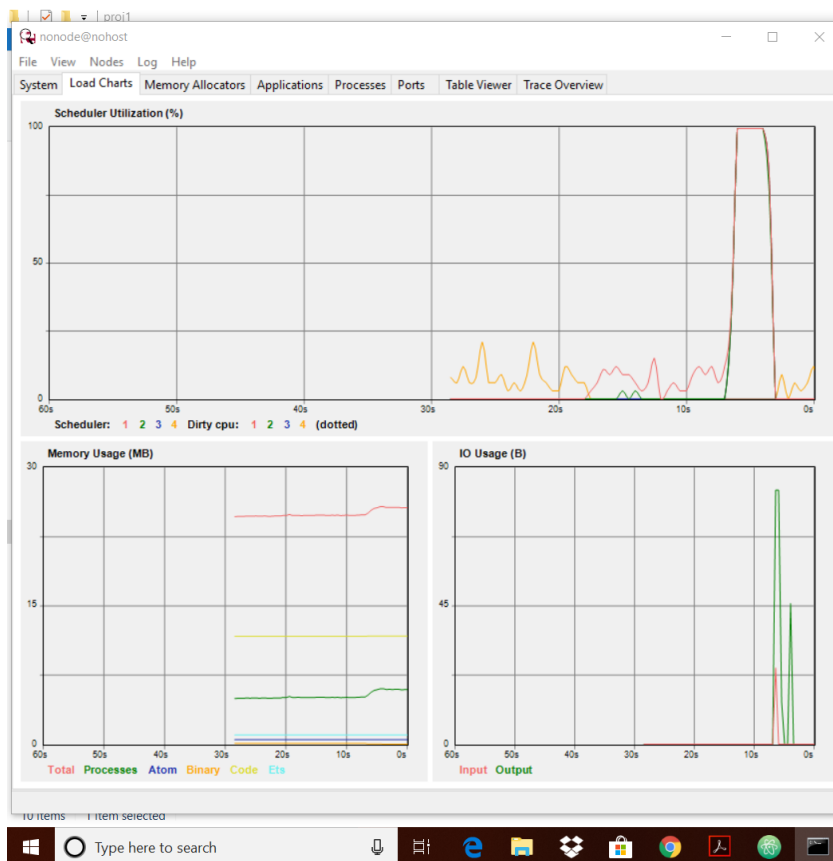
Case 2- Input: (100000000,4)



```
C:\Windows\System32\cmd.exe - iex -S mix
Microsoft Windows [Version 10.0.17134.228]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Aditya\Documents\test\proj1>iex -S mix
Interactive Elixir (1.7.3) - press Ctrl+C to exit (type h() ENTER for help)
iex(1)> :observer.start
:ok
iex(2)> Proj1.start(100000000,4)
{:ok, #PID<0.3116.0>}
iex(3)>
```

Case 3- Input: (10000000,24)



```
C:\Windows\System32\cmd.exe - iex -S mix
Microsoft Windows [Version 10.0.17134.228]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Aditya\Documents\test\proj1>iex -S mix
Interactive Elixir (1.7.3) - press Ctrl+C to exit (type h() ENTER for help)
iex(1)> :observer.start
:ok
iex(2)> Proj1.start(10000000,24)
1
9
20
202289
306060
25
128601
44
76
121
197
304
353
540
856
534964
1301
2053
3112
3597
841476
5448
8576
2002557
1273121
12981
353585
20425
30908
35709
3500233
54032
3020784
84996
5295700
8329856
{:ok, #PID<0.1500.0>}
iex(3)>
```

Case 4- Input: (100000000,24)

