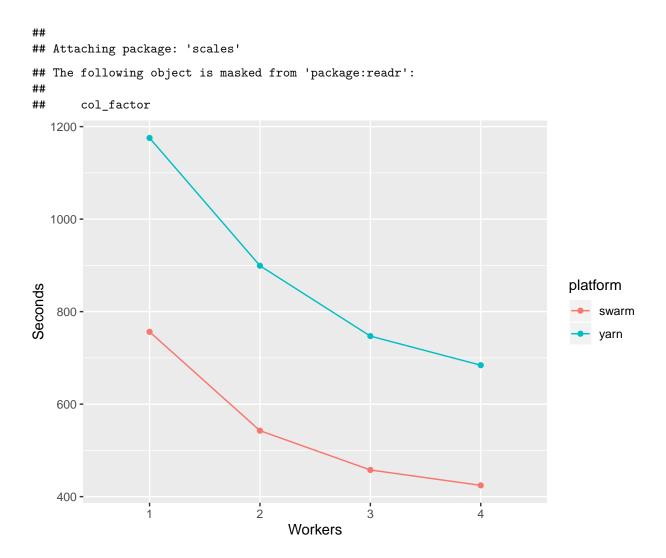
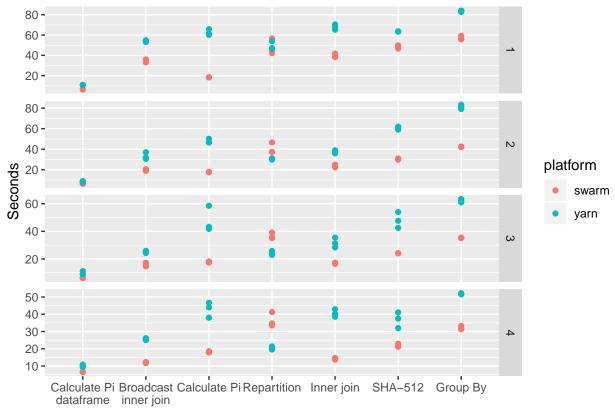
## PySpark-Benchmark





## Benchmark for each Platform and Worker

##		benchmark	workers	${\tt platform}$	seconds
##	1:	Group By	4	swarm	32.132405
##	2:	Repartition	4	swarm	36.495715
##	3:	Inner join	4	swarm	14.228287
##	4:	Broadcast inner join	4	swarm	12.084065
##	5:	SHA-512	4	swarm	21.801709
##	6:	Calculate Pi	4	swarm	18.127979
##	7:	${\tt Calculate\ Pi\ dataframe}$	4	swarm	6.599748
##	8:	Group By	3	swarm	35.301522
##	9:	Repartition	3	swarm	36.700244
##	10:	Inner join	3	swarm	16.799081
##	11:	Broadcast inner join	3	swarm	15.560974
##	12:	SHA-512	3	swarm	24.090170
##	13:	Calculate Pi	3	swarm	17.859944
##	14:	${\tt Calculate\ Pi\ dataframe}$	3	swarm	6.239339
##	15:	Group By	2	swarm	42.362474
##	16:	Repartition	2	swarm	40.441895
##	17:	Inner join	2	swarm	23.612223
##	18:	Broadcast inner join	2	swarm	19.866129
##	19:	SHA-512	2	swarm	30.357701
##	20:	Calculate Pi	2	swarm	17.769533
##	21:	${\tt Calculate\ Pi\ dataframe}$	2	swarm	6.464988
##	22:	Group By	1	swarm	57.123716
##	23:	Repartition	1	swarm	47.359194
##	24:	Inner join	1	swarm	40.434331
##	25:	Broadcast inner join	1	swarm	34.599507
##	26:	SHA-512	1	swarm	47.925313

```
## 27:
                 Calculate Pi
                                     1
                                          swarm 18.286174
## 28: Calculate Pi dataframe
                                     1
                                          swarm 6.381473
## 29:
                     Group By
                                          yarn 51.800268
## 30:
                  Repartition
                                     4
                                           yarn 20.342610
## 31:
                   Inner join
                                     4
                                           yarn 40.568093
## 32:
         Broadcast inner join
                                     4
                                           yarn 25.523503
## 33:
                      SHA-512
                                           yarn 36.856140
## 34:
                 Calculate Pi
                                     4
                                           yarn 42.880719
## 35: Calculate Pi dataframe
                                     4
                                           yarn 10.091344
## 36:
                     Group By
                                     3
                                           yarn 62.135808
## 37:
                  Repartition
                                     3
                                           yarn 24.255938
## 38:
                   Inner join
                                     3
                                           yarn 31.669951
## 39:
         Broadcast inner join
                                     3
                                           yarn 25.277192
                                     3
## 40:
                      SHA-512
                                           yarn 48.053262
## 41:
                 Calculate Pi
                                     3
                                           yarn 47.879126
                                     3
## 42: Calculate Pi dataframe
                                           yarn 9.755213
## 43:
                     Group By
                                     2
                                           yarn 81.188789
                                     2
## 44:
                  Repartition
                                           varn 30.677414
## 45:
                   Inner join
                                     2
                                           yarn 37.473158
         Broadcast inner join
                                     2
                                           yarn 33.213614
## 46:
## 47:
                      SHA-512
                                     2
                                           yarn 60.826048
## 48:
                 Calculate Pi
                                     2
                                           yarn 47.831836
## 49: Calculate Pi dataframe
                                     2
                                           yarn 8.532428
## 50:
                     Group By
                                     1
                                           yarn 83.665880
## 51:
                  Repartition
                                     1
                                           yarn 49.218491
## 52:
                   Inner join
                                     1
                                           yarn 67.929862
## 53:
         Broadcast inner join
                                     1
                                           yarn 54.122219
## 54:
                      SHA-512
                                     1
                                           yarn 63.573516
## 55:
                                     1
                 Calculate Pi
                                           yarn 62.505460
## 56: Calculate Pi dataframe
                                     1
                                           yarn 10.823174
##
                    benchmark workers platform
                                                  seconds
```