OPERATING SYSTEM -2 (CS3523)

ASSGNMENT – 4
(Implement solutions to Readers-Writers and Fair Readers-Writers problem using semaphores)

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- To check above algorithm's, my program creates *nw* writer threads and *nr* reader threads, each of which executes their respective writer and reader functions, *kw* and *kr* times respectively.
- The default value which i used for this report is as follows :

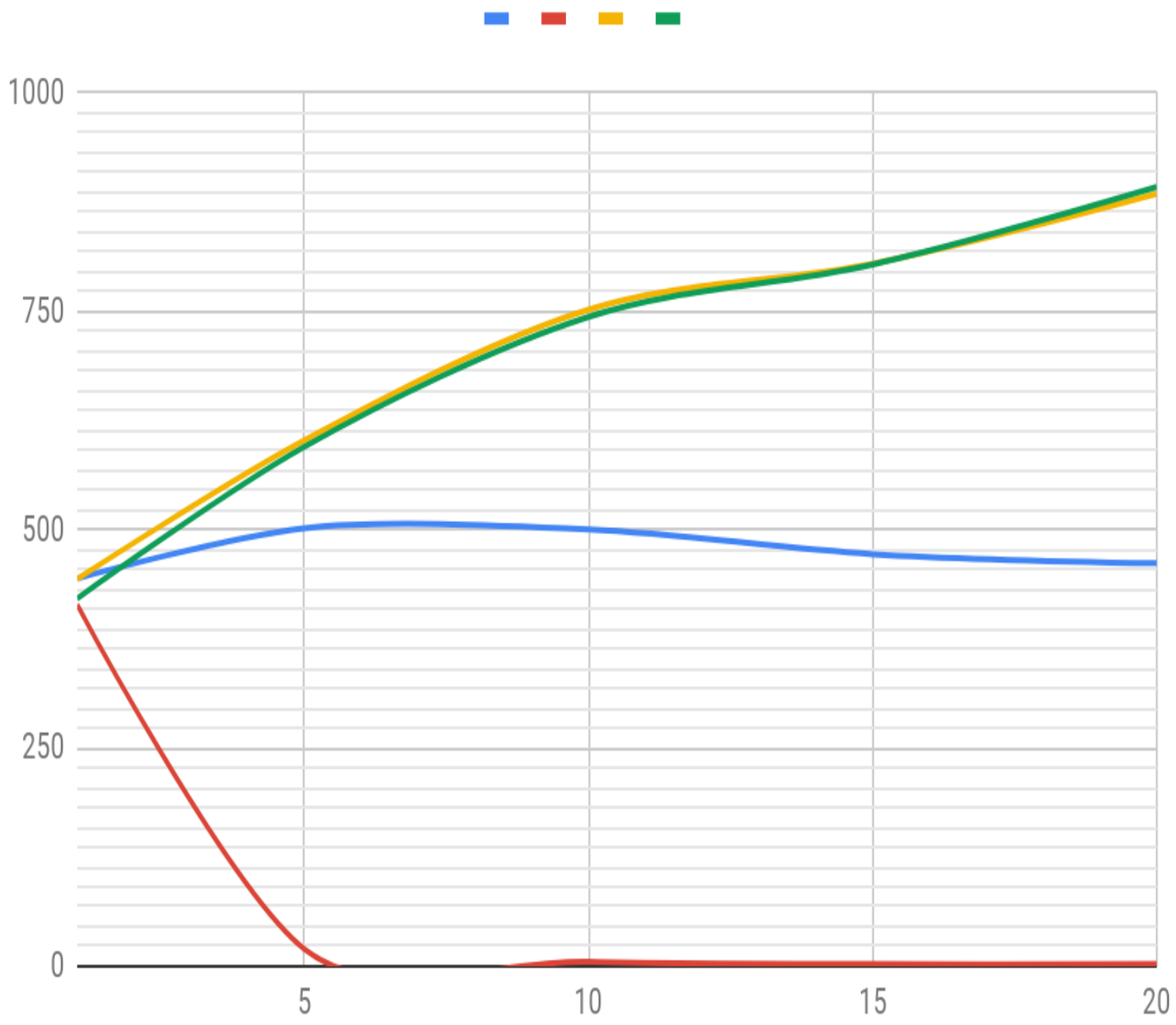
  μCS = 50 milliseconds

  μRem = 30 milliseconds
- All the time taken in this report is in milliseconds.

Graph 1: Average Waiting times with constant Writers

nw = 10, kr = 10, kw = 10

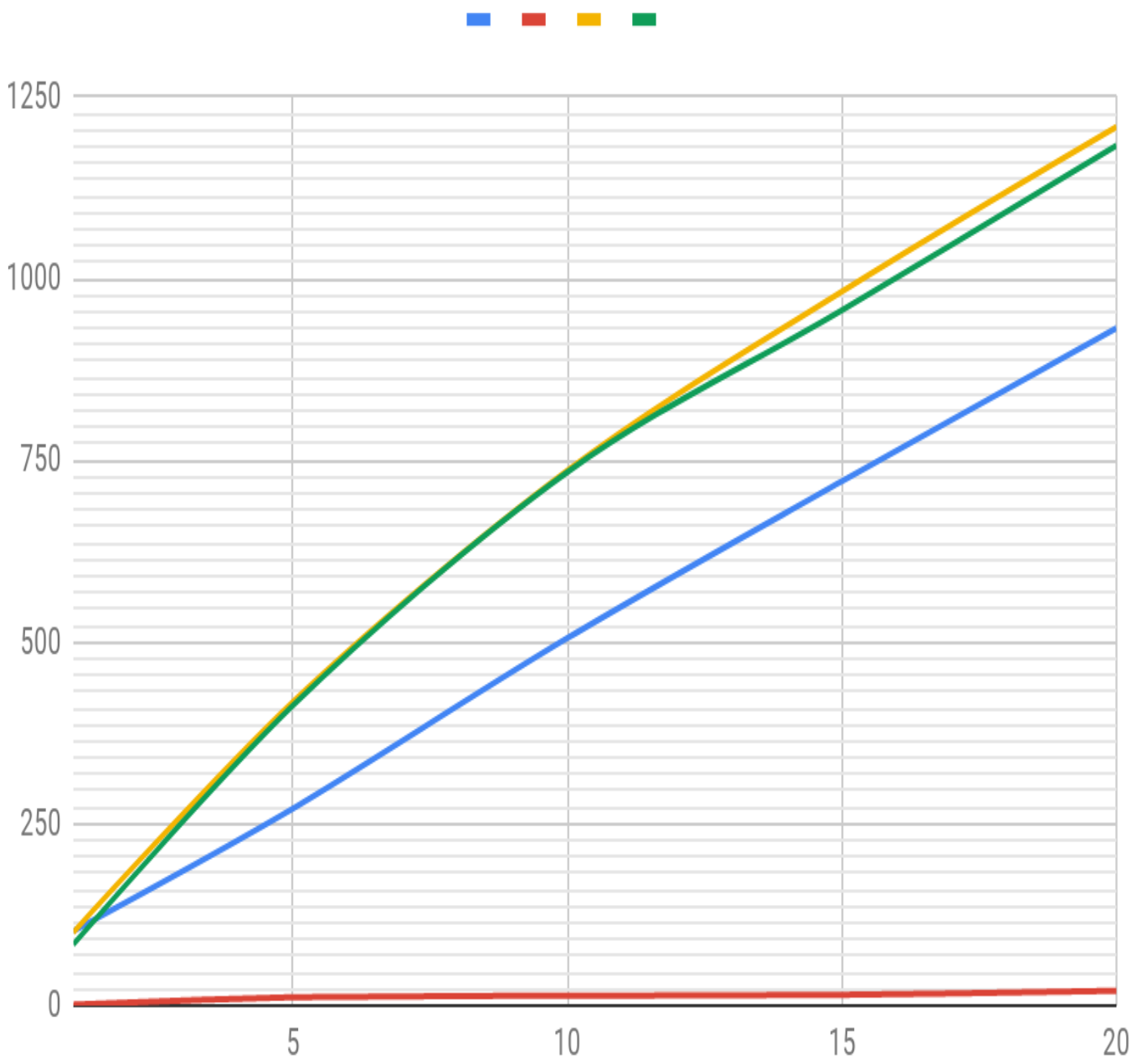
- Red Colour - Reader(RW)
- Blue Colour - Writer(RW)
- Green Colour – Reader (FairRW)
- Yellow Colour - Writer(FairRW)



Graph 2: Average Waiting times with constant Reader

nr = 10, kr = 10, kw = 10

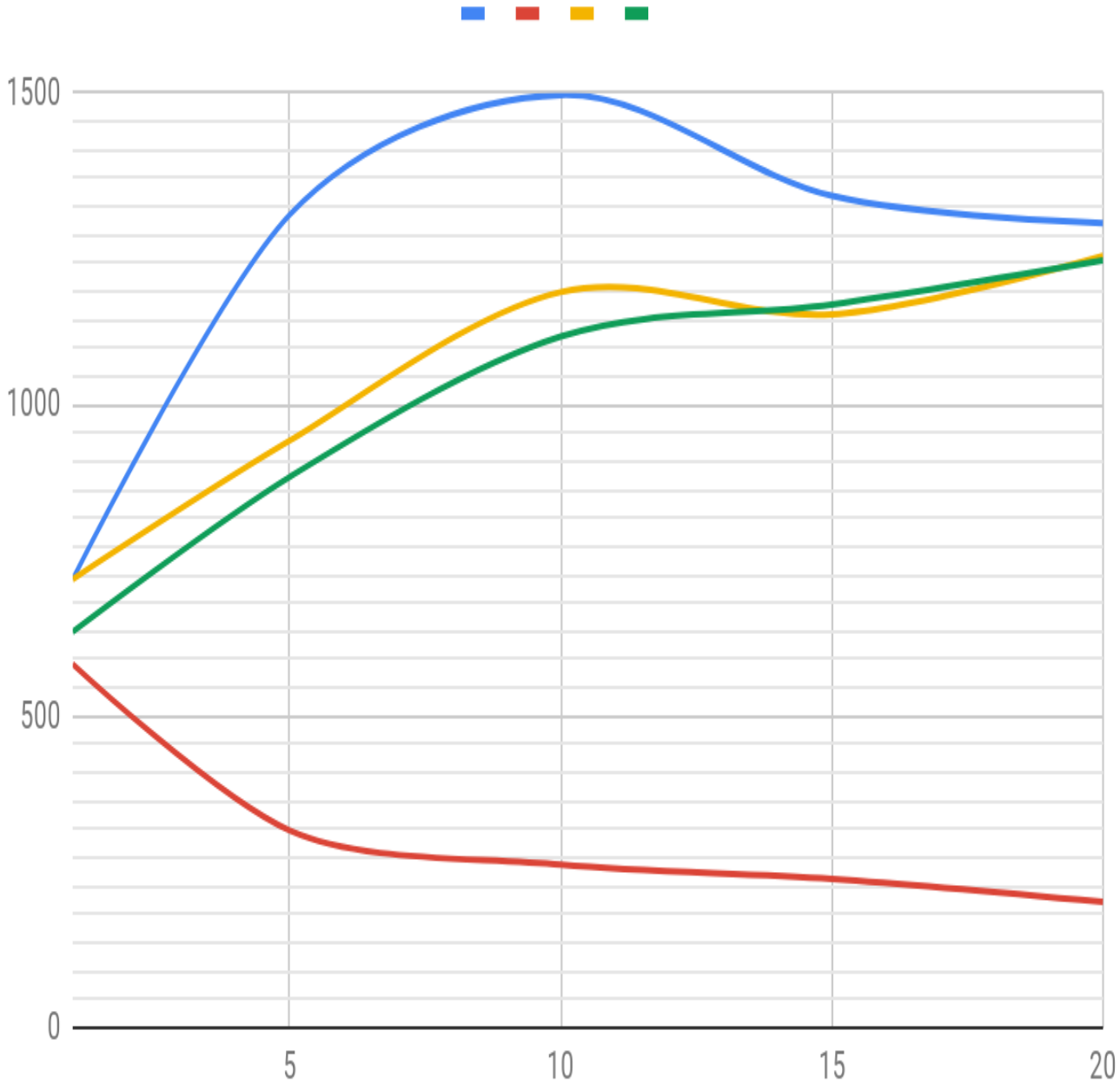
- Red Colour - Reader(RW)
- Blue Colour - Writer(RW)
- Green Colour – Reader (FairRW)
- Yellow Colour – Writer(FairRW)



Graph 3: Worst Waiting times with constant Writer

nw = 10, kr = 10, kw = 10

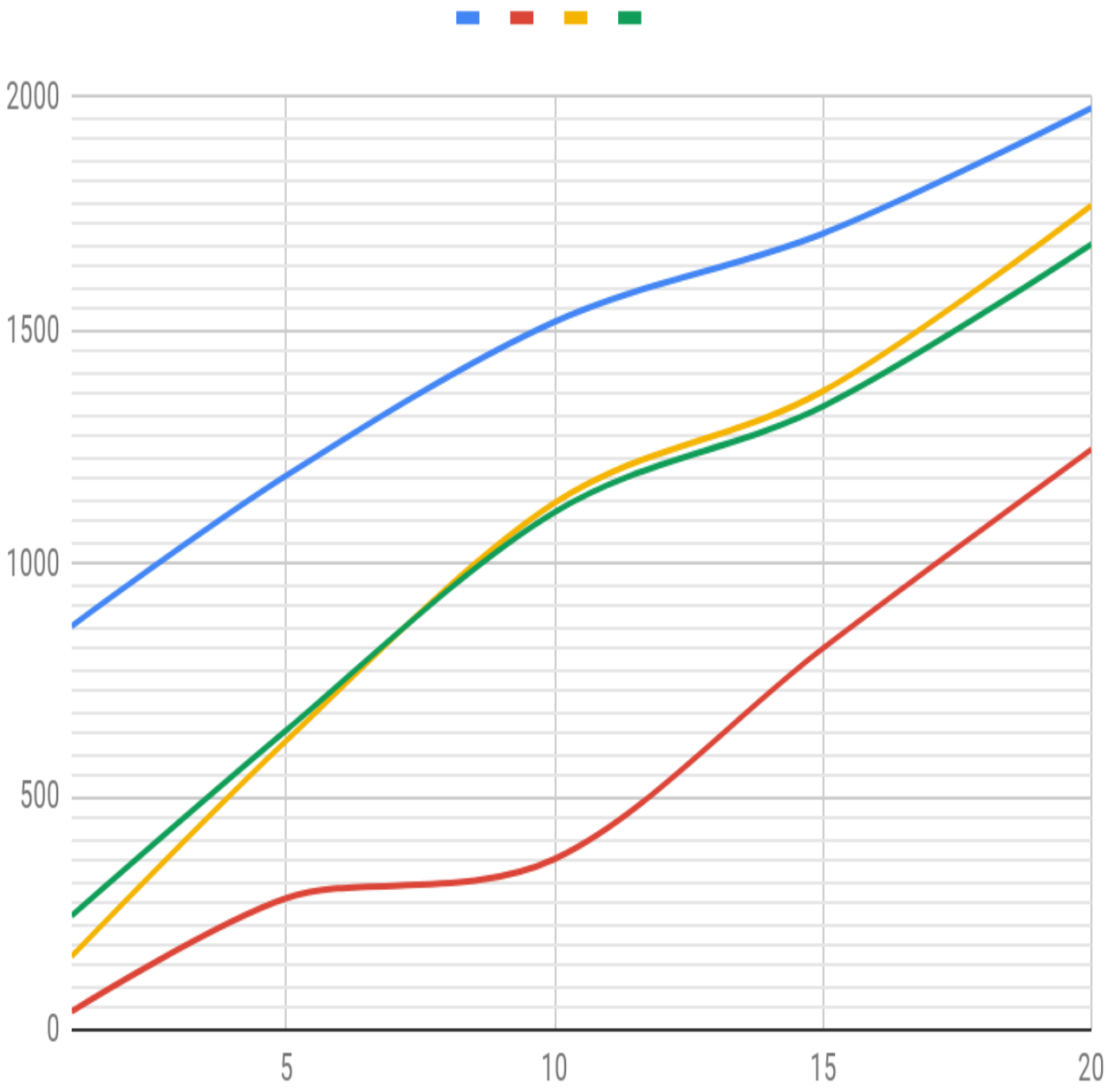
- Red Colour - Reader(RW)
- Blue Colour - Writer(RW)
- Green Colour – Reader (FairRW)
- Yellow Colour – Writer(FairRW)



Graph 4 : Worst Waiting times with constant Reader

nr = 10, kr = 10, kw = 10

- Red Colour - Reader(RW)
- Blue Colour - Writer(RW)
- Green Colour – Reader (FairRW)
- Yellow Colour – Writer(FairRW)



- The Average waiting time for each thread of FairRW(RW : Reader Writer) is significantly more than the average waiting time of each thread of RW.
- The Worst waiting Time For each reader thread of RW is too less than the worst waiting time for each reader thread of FairRW and this gap increases as we increase number of reader thread while keeping writer thread constant.
- The Worst waiting Time For each writer thread of RW is too more than the worst waiting time for each writer thread of FairRW.