

Zafar Mahmood
DA_Exercise_3
Solution

Exercise 1: Point to Point Communication

- **Send All Using Naive Way**

	10^3	10^5	10^7
16	0.05622196197 51	0.0936789512634	5.74028110504
32	0.11443305015 6	0.285394906998	17.401581049

- **Send All Using Log Way**

	10^3	10^5	10^7
16	0.02390503883 36	0.0622210502625	6.45353484154
32	0.04325819015 5	0.138918161392	19.4328420162

Exercise 2: Collective Communication

Program Sequence :

- Used the number of process 2,3,4,5
- Broadcast the image
- Each rank will extract its image piece and then calculates its R G B and Gray part using their frequencies
- then using reduce , it will all get back to root = 0 , their frequencies of each R G B will be added cumulatively
- Plot each R G B and Grey using plot function

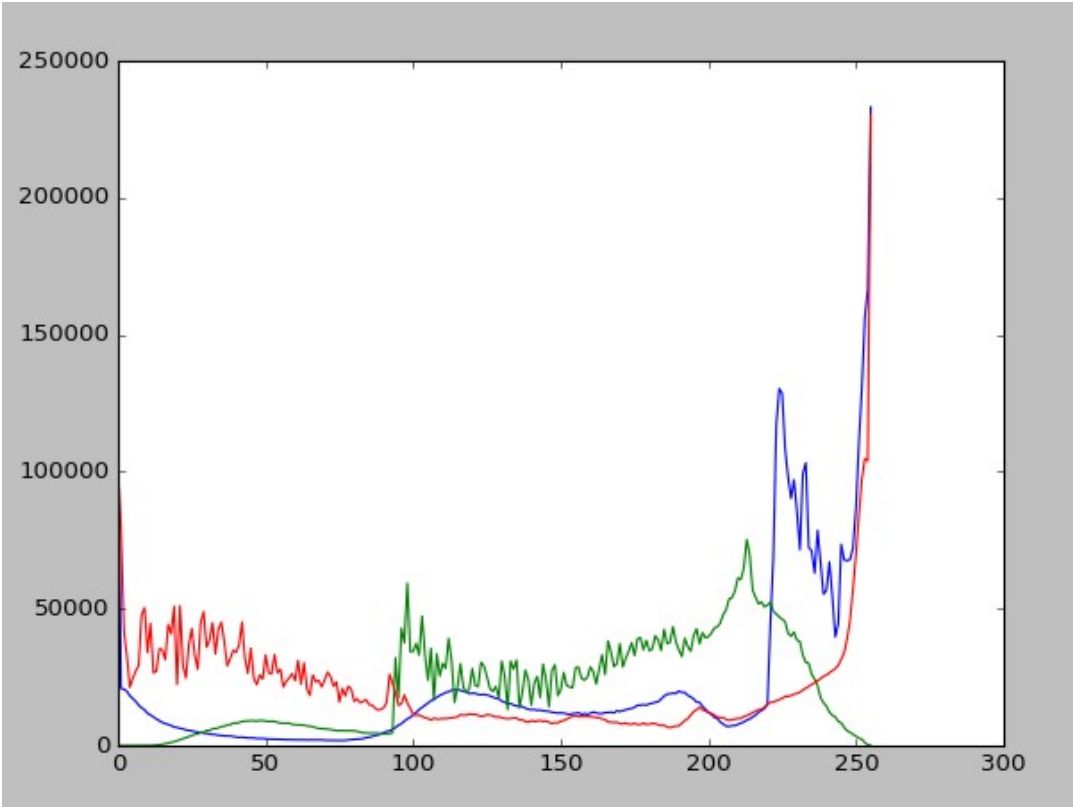
Now Running time

Process	2	3	4	5
Time	14.2632701397	11.3524281979	10.3221259117	9.80629706383

Used Image:



RGB image :



Grey Image :

