(Swimming Coach) Based on Machol (1970). A swimming coach is putting together a relay team for the 400-meter relay. Each swimmer must swim 100 meters of breaststroke, backstroke, butterfly, or freestyle, and each swimmer can swim only one race. The coach believes that each swimmer can attain the times given in below table. To minimize the team’s total time for the race, which swimmers should swim which strokes?



**Discussion: -**

Our objective in the problem is to minimize the total time. Time taken by swimmer to finish 100 meters in each swimming style is given as out input. Our model should decide which swimmer needs to be picked for each swimming style.

**Mathematical Model: -**

*Parameters (Inputs):*

*Decision Variables:*

*Objective:*

*Constraints:*

Constraint 2 will make sure that a swimmer can go for only one type of race. Constraint 3 makes sure that swimmers were assigned to all the styles to complete the relay.

*Excel Implementation:* Please find the attached spreadsheet for solution.



