**Solution 1**

1. No, does not work.

**Counter Example:-** 1, 6 ,8, 7, 5, 9, 3, 4

Picking the biggest integer: 1, 6 ,8, 7, 5, **9**, 3, 4

Picking the second biggest integer: 1, 6 ,**8,** 7, 5, **9**, 3, 4

Picking the third biggest integer: 1, 6 ,**8**, **7**, 5, **9**, 3, 4

Can’t take 6: - do -

Can’t take 5: - do -

Take next smallest: 1, 6 ,**8**, **7**, 5, **9**, 3, **4**

Take next smallest: **1**, 6 ,**8**, **7**, 5, **9**, 3, **4**

Sum = 29 = 1 + 8 + 7 + 9 + 4

Optimum Solution: