About Test（Stable Match）

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Initially all m ∈ M and w ∈ W are free
While there is a man m who is free and hasn't proposed to
every woman w for which (m, w) ∉ F
    Choose such a man m
    Let w be the highest-ranked woman in m's preference list
        to which m has not yet proposed
    If w is free then
        (m, w) become engaged
    Else w is currently engaged to m'
        If w prefers m' to m then
            m remains free
        Else w prefers m to m'
            (m, w) become engaged
            m' becomes free
        Endif
    Endif
Endwhile
Return the set S of engaged pairs
```

Construct Input Test Data: Input analysis

	1st	2nd	3rd
Xavier	Amy	Bertha	Clare
Yancey	Bertha	Amy	Clare
Zeus	Amy	Bertha	Clare

- Generate random name but do not repetitive.
- Simple and efficient way：w1,w2, w3 ..or m1,m2, m3 … and so on.
- So you can generate arbitrary scale input data.
- Prefer Lists: generate 1 to n for priority. Random swap 2 elements. You can also construct some special case, for example, all men's prefer list are the same.

Check Results

- Check the pairs number
- Check every man has no repetition and exists in men set.
- Check every man's company has no repetition and exists in women set
- Check every pair whether satisfy stable match condition.(no unstable pair)

Unstable pair condition

- Unstable match: woman x and man y are unstable if:

x prefers y to its assigned man.

y prefers x to its assigned woman.