



DSFA
Spring 2021

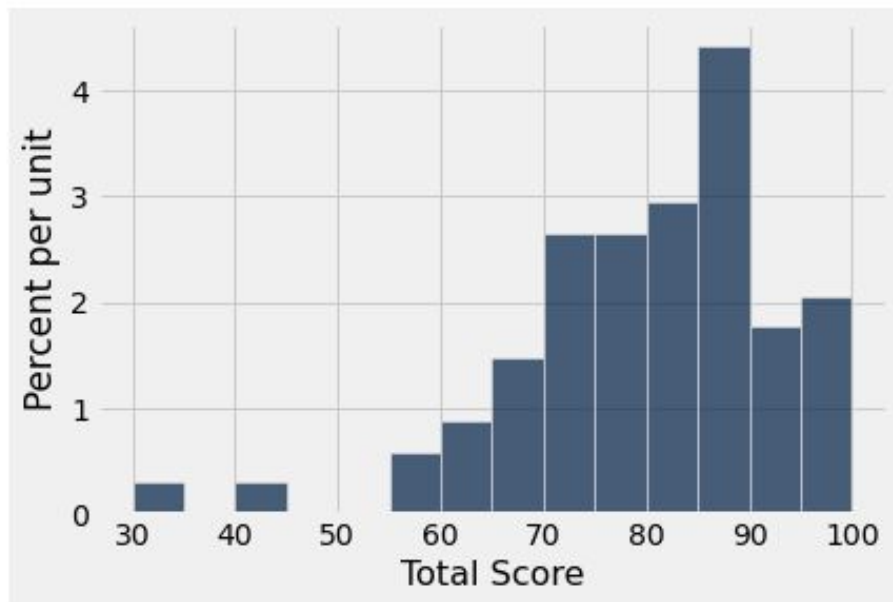
Lecture 17

Simulation

Announcements

- Project 1, Part 2 due Friday 3/26, 5:59PM

```
grades.hist('Total Score', bins=np.arange(30,101,5))
```



```
np.average(grades.column('Total Score'))
```

79.33823529411765

```
np.std(grades.column('Total Score'))
```

12.670148211814356

Simulation Structure

(Demo)

Mendel's Pea Plants



Mendel's Pea Plants

Gregor Mendel (1822-1884)

- Founder of the modern field of genetics
- Theorized that pea plants will bear purple or white flowers at random, in the ratio 3:1
- Planted 929 plants and observed their colors
- Let's simulate that...

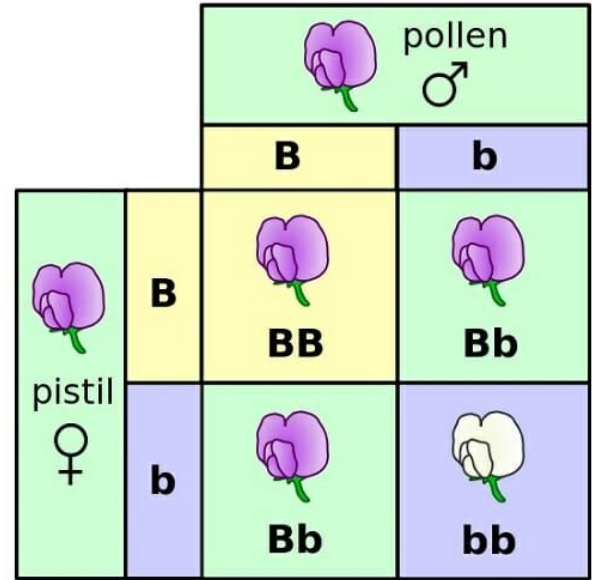


Image from biologydictionary.net

(Demo)

When poll is active, respond at pollev.com/dsfa

Text **DSFA** to **22333** once to join

Assume Mendel's theory is correct, and the fraction of purple plants is .75. What kind of a number is that?

Population parameter

Population statistic

Sample parameter

Sample statistic

None of the above



Mendel's Observations

- Mendel observed 705 of the 929 plants had purple flowers
- Is that consistent with our simulation?

(Demo)

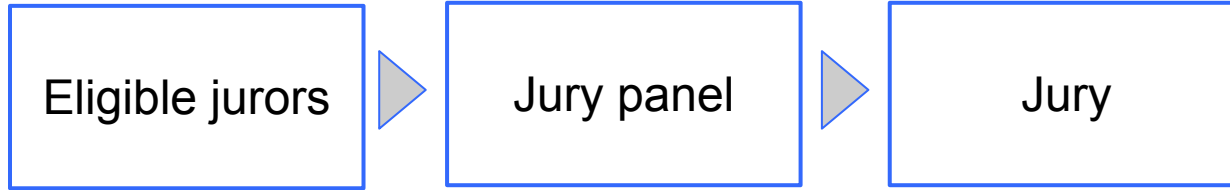
Different Statistics

The statistic was "proportion of plants with purple flowers". We could have chosen a different statistic, and predicted the values of that statistic.

(Demo)

Swain v. Alabama

Juries



United States Jury Act of 1968: [A]ll litigants in Federal courts entitled to trial by jury shall have the right to...juries selected at random from a fair cross section of the community in the district or division wherein the court convenes.

Robert Swain v. Alabama

1965 Supreme Court case about jury selection

- In Talladega, Alabama, 26% of residents were Black
- In Swain's jury panel, 8 of 100 panelists were Black
- All 8 were struck from the jury by the prosecution (using peremptory challenges)

Ruling: "The overall percentage disparity has been small and reflects no studied attempt to include or exclude a specified number of [Black men]."

(Demo)
