

The background features a white background with several colorful circles and dashed lines. In the top left, there is a large teal circle with a white center, a smaller teal circle, and a dashed teal circle. In the top right, there is a large lime green circle, a smaller green circle, and a dashed green circle. In the bottom left, there is a large green circle with a white center, a smaller orange circle, and a dashed yellow circle. In the bottom right, there is a large yellow circle, a smaller orange circle, and a small pink circle. A dashed blue line curves across the page, passing through the center of the text.

AP Statistics Project: Are you impatient?

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Project Summary

People tend to overestimate the time of short events due to impatience.

This project seeks to determine whether or not people unknowingly overestimate the length of an audio clip.

A decorative background featuring a large dashed light-blue circle. Various colored circles and arcs are scattered around it: a large yellow-green circle at the top left, a small green circle with a white center, a small blue circle, a large orange circle, a small pink circle, a large yellow arc at the bottom left, a large cyan arc at the top center, a large blue circle containing the text "66", a large yellow circle, a large orange arc, a small pink circle, a large green circle with a white center, and a small cyan circle at the bottom right.

“

Hypothesis:

$$H_0: \mu_0 = 12$$

$$H_A: \mu_0 > 12$$



Design

I collected a random sample of 30 people, and played the individual a clip of a song that was exactly 12 seconds. The listener will know nothing other than I have asked them to listen to a clip, thus not expecting to guess the length.

Once they have heard the clip, I will ask them how long they think the clip was, and record their result in the form of how many seconds above (+) or seconds below (-) 12 they were.

Assumptions and Conditions for T-Test

Random?

Stated

Independent?

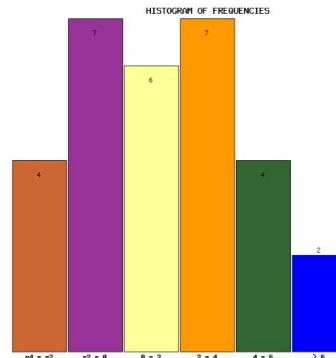
Assumed

<10%

30 < 10% all people

Normal?

Yes

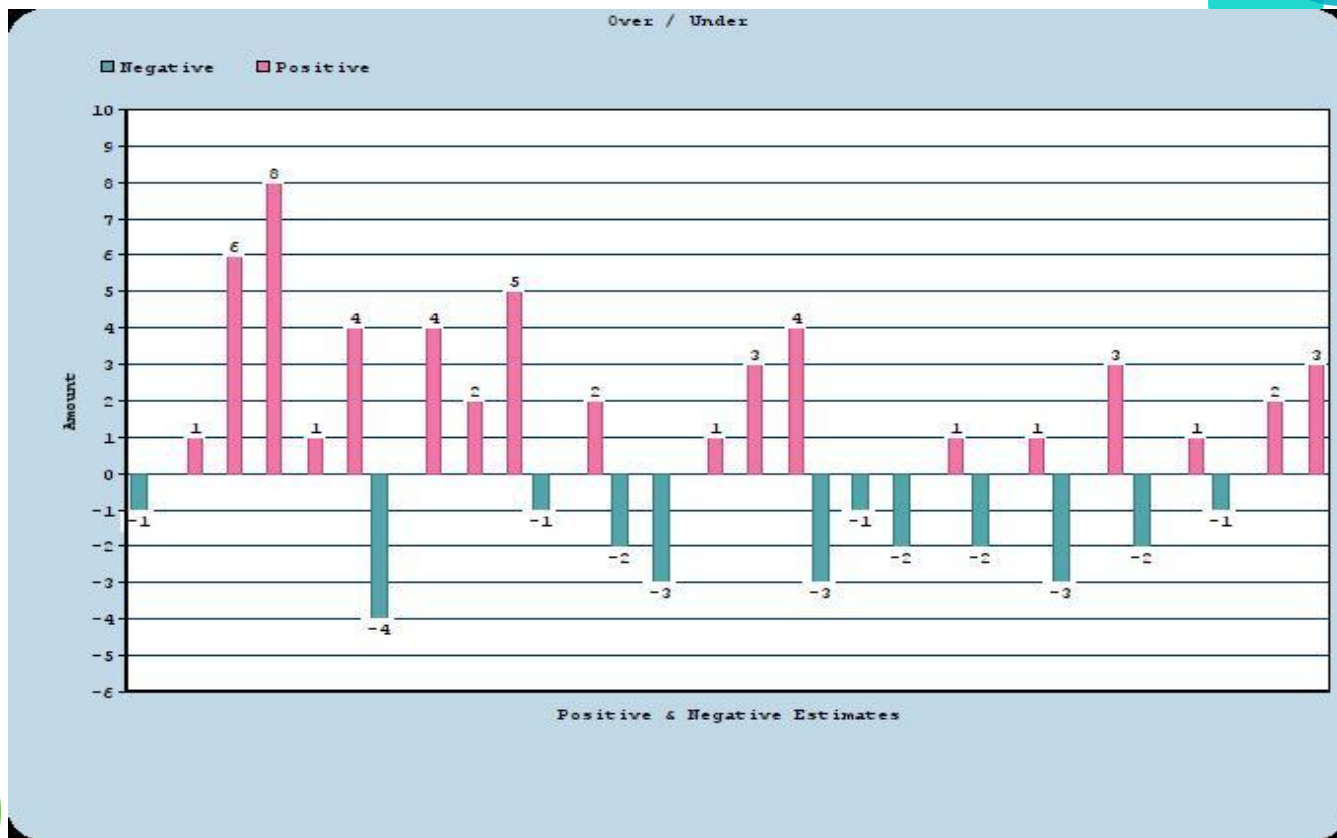


Data

Name	How many seconds was the clip?	Number from mean (Converted)
1. Julia	11	-1
2. Tylar	13	+1
3. Amanda	18	+6
4. Bill	20	+8
5. Summer	13	+1
6. Kaitlyn	16	+4
7. Nick	8	-4
8. Wyatt	16	+4
9. Connie	14	+2
10. Jordan	17	+5
11. Regan	11	-1
12. Sarah	14	+2
13. Brianna	10	-2
14. John	9	-3
15. Cody	13	+1

16. Kendall	15	+3
17. Heather	16	+4
18. Ashton	7	-3
19. Helen	11	-1
20. Sam	10	-2
21. Faith	13	+1
22. Kim	15	+2
23. Maggie	13	+1
24. Quenten	9	-3
25. Kassi	17	+3
26. Josh	10	-2
27. Britney	11	+1
28. Calvin	11	-1
29. Betty	14	+2
30. Nigel	15	+3

Visualization





T-Test Results

$T = 1.9317$

$p = 0.0316$

$\bar{X} = 1.033$ (repeating)

$S_x = 2.930$

$N = 30$

A decorative graphic consisting of various colored circles and rings in shades of yellow, pink, orange, green, and blue, scattered across the slide. Some are solid, some are dashed, and some are hollow rings.

Conclusion

With a low p-value of 0.0316, Reject H_0 due to sufficient evidence that the mean number of people that guess over 12 seconds when played a clip is greater than those who do not.

Thank You!



Any questions?