IT351: Human Computer Interaction
Lab Assignment 3
Hick's Law and Fitts Law

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Introduction:

Hick's Law
Hick's Law predicts the time it takes to make a decision in selecting among possible choices. The Hick-Hyman Law measures cognitive information capacity.

Fitts' Law
Fitts' Law is a model of speed-accuracy tradeoffs used in human–computer interaction and ergonomics. It predicts time required to acquire a target on screen as a function of the distance to the target and the size of the target. Fitts's law is used to model the act of pointing, either by physically touching an object with a hand,finger or virtually or by pointing to an object on a computer monitor using a pointing device.

Procedure:

Hick's Law

1. A red box with a button in it will be displayed on the screen.
2. An instruction will appear above the red box.
3. You have to take action as per the instruction.
4. There are a total of 10 instructions to execute sequentially.
5. When you are done, your reaction times that were logged will be displayed.

Fitts' Law

1. A circle will be displayed on the screen.
2. Click on the circle the very moment it appears.
3. After clicking the first circle, another circle with random size, color and position will appear on the screen.
4. Click on this next circle too the very moment you see it.
5. Repeat steps 3 and 4 as long as circles continue to appear. (around 21 circles).
6. Finally you will see a table having data of your selection time, target distances to circle and circle dimensions.
7. Observe the graph carefully and analyse the results.

Screenshots of UI:

Hick's Law

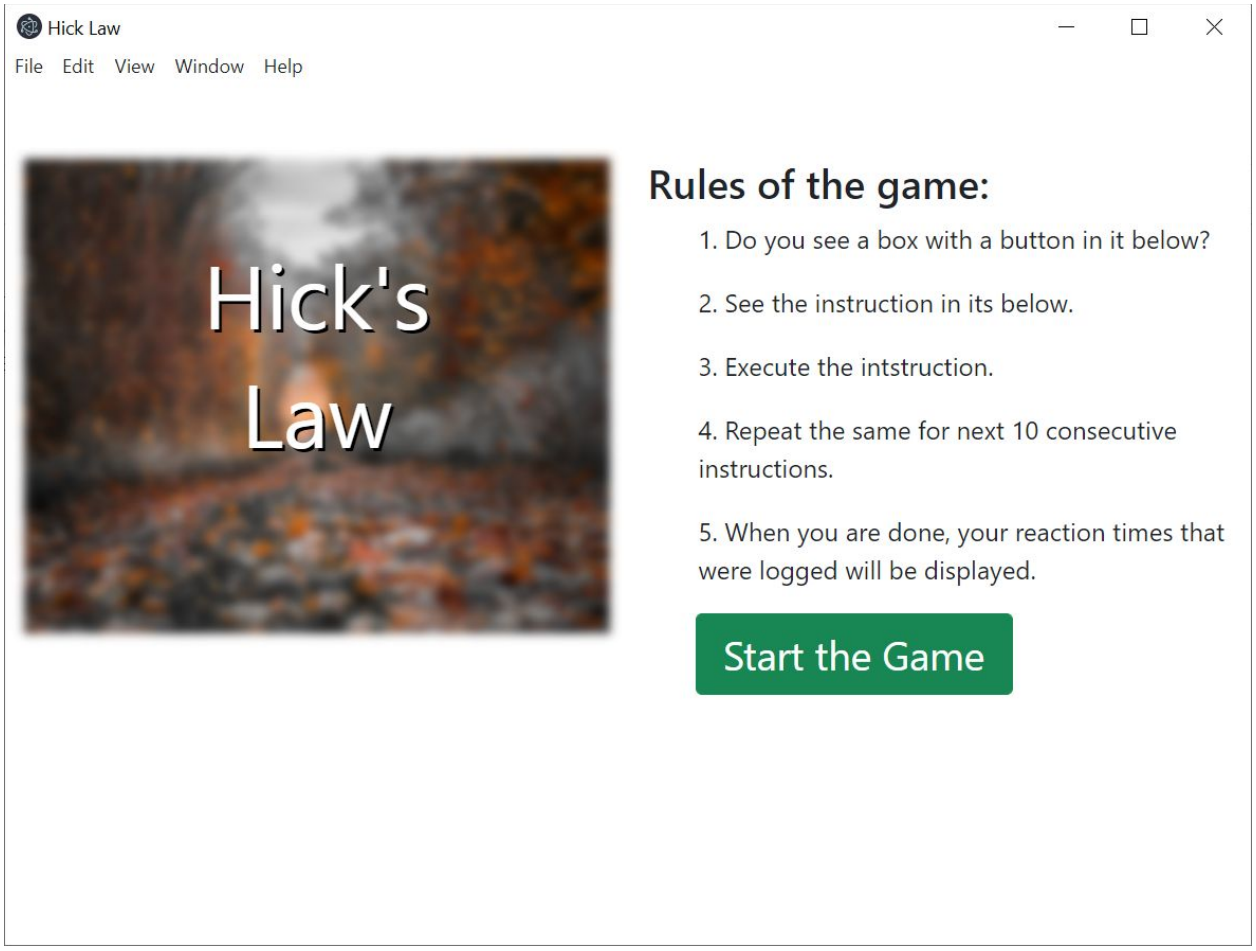

Fig 1. Home Page

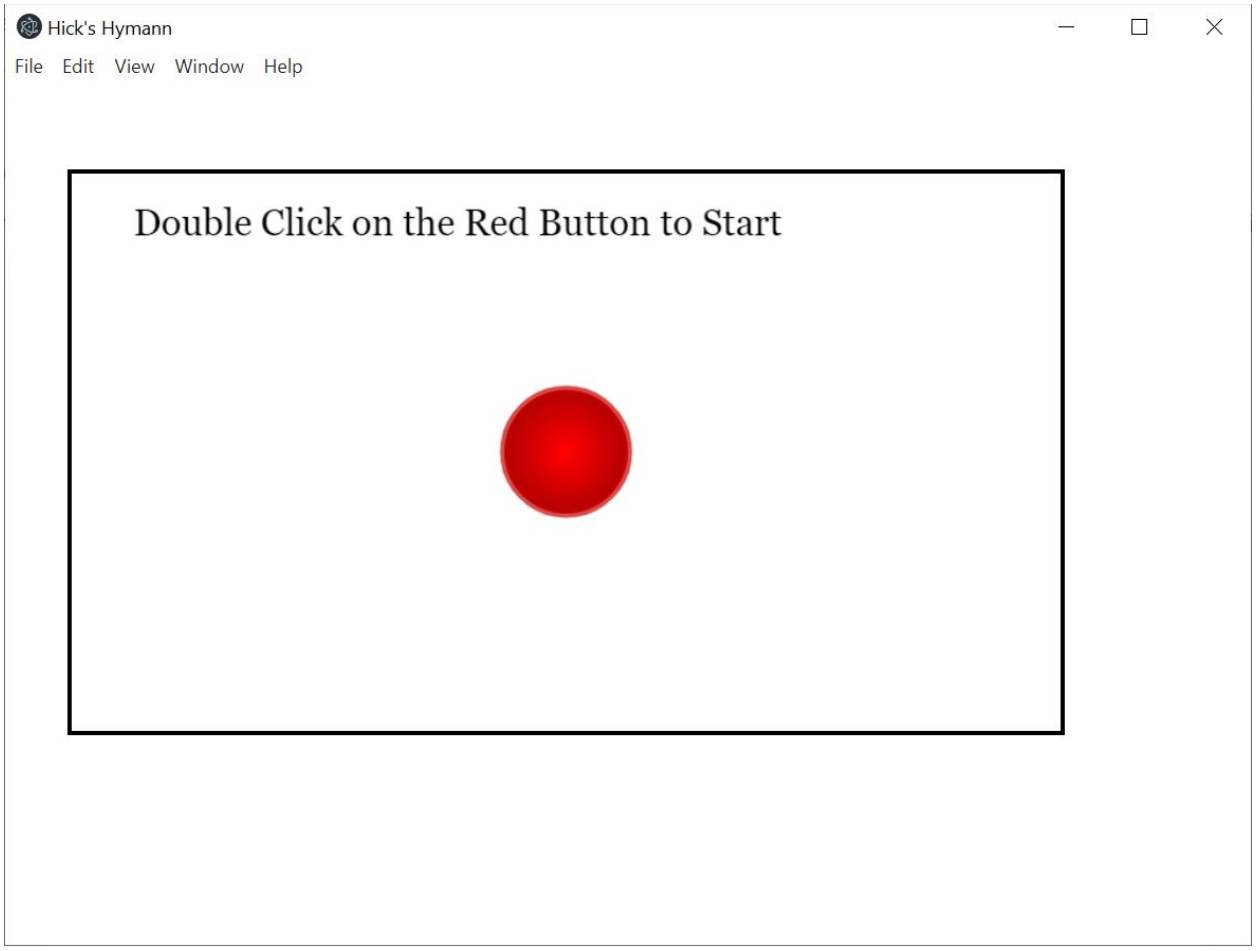

Fig 2. The Game Page

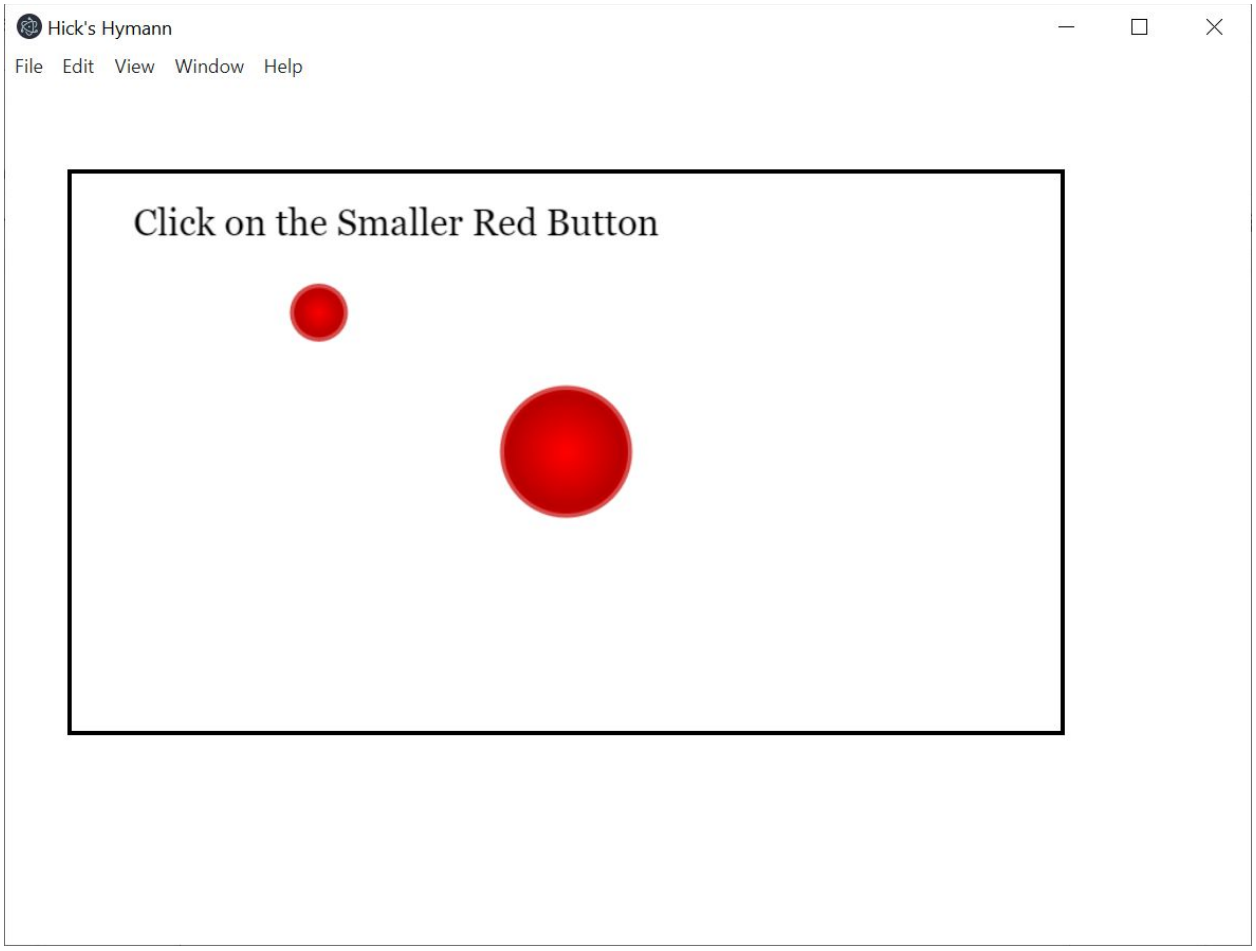

Fig 3. Instruction and buttons

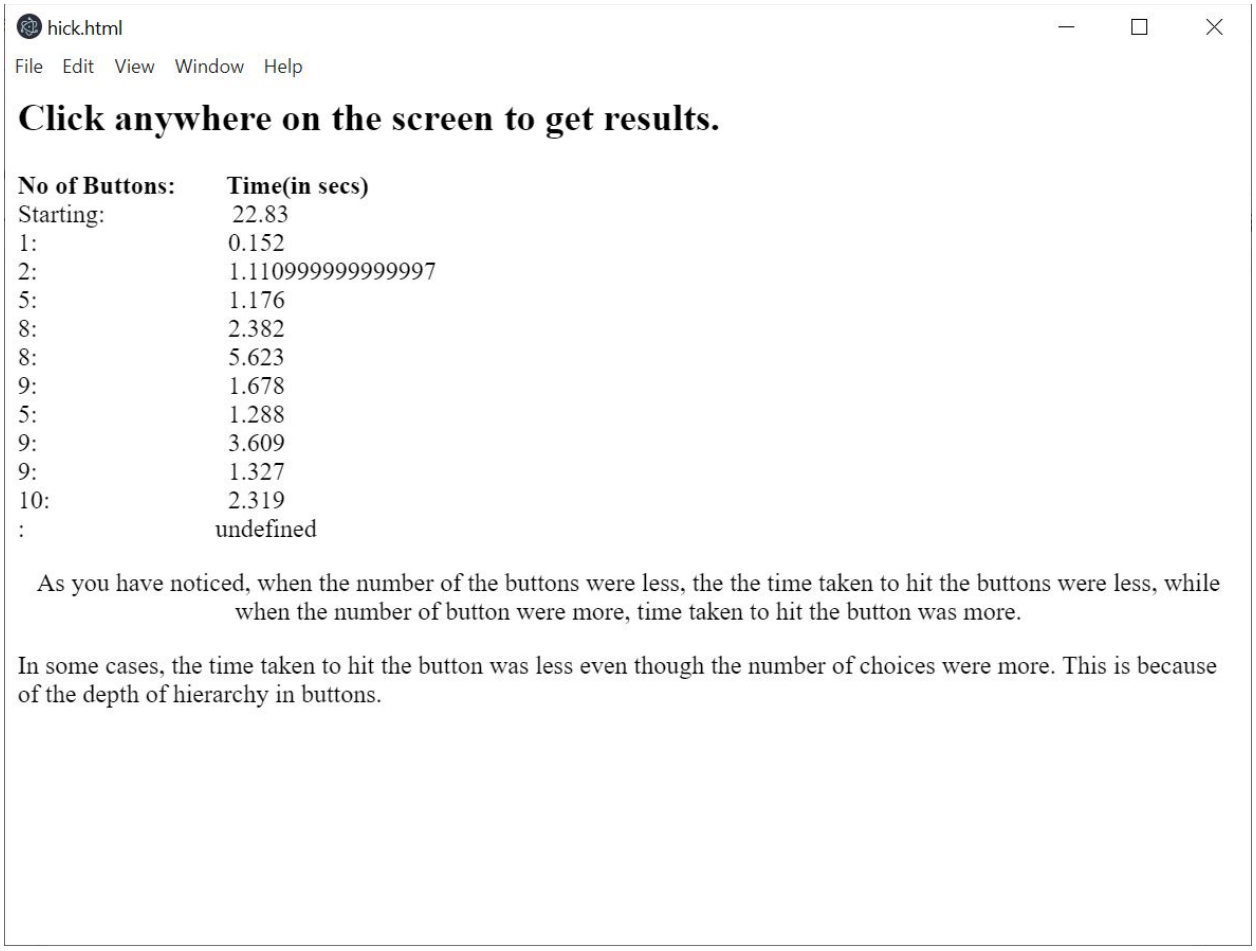

Fig 4. Results and Analysis

Responsive Page

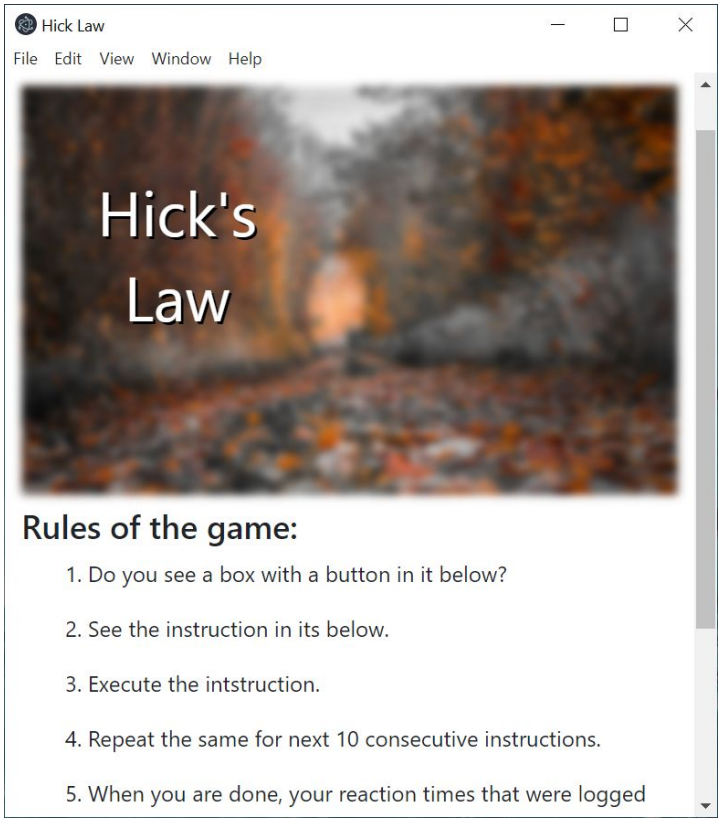

Fig 5. Responsive Home Page

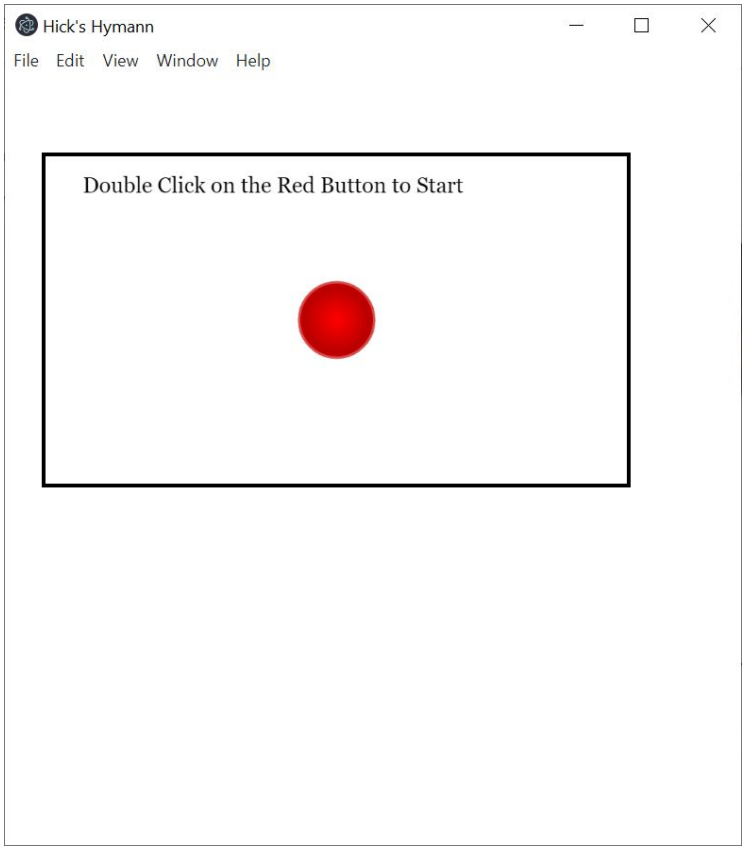

Fig 6. Responsive Game

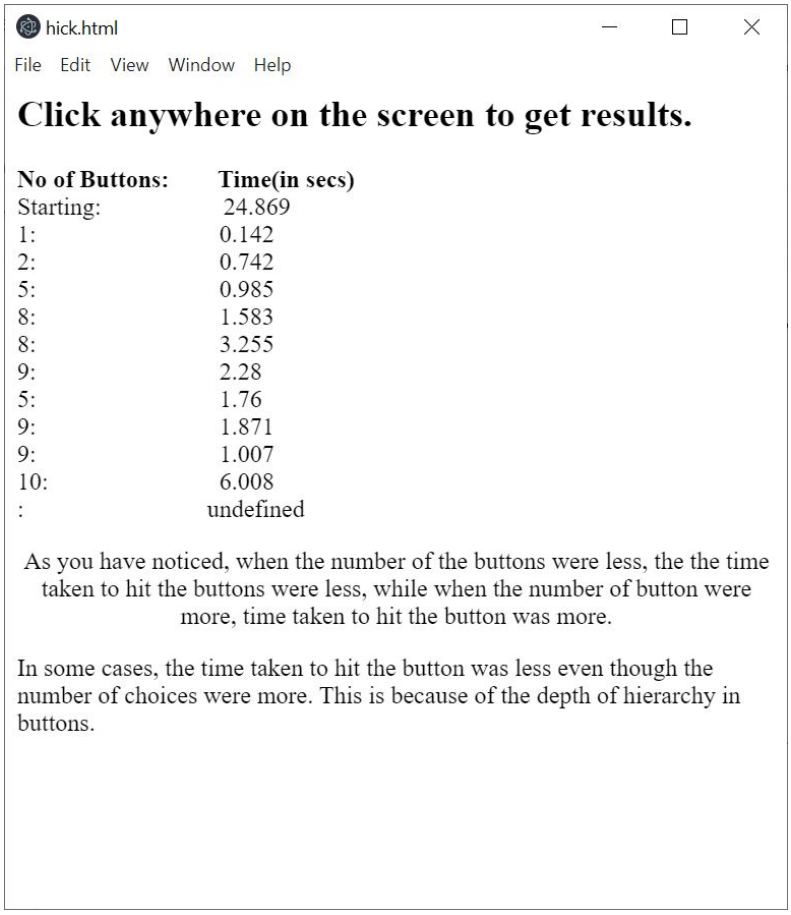

Fig 7. Responsive Results and Analysis Page

Analysis Graph

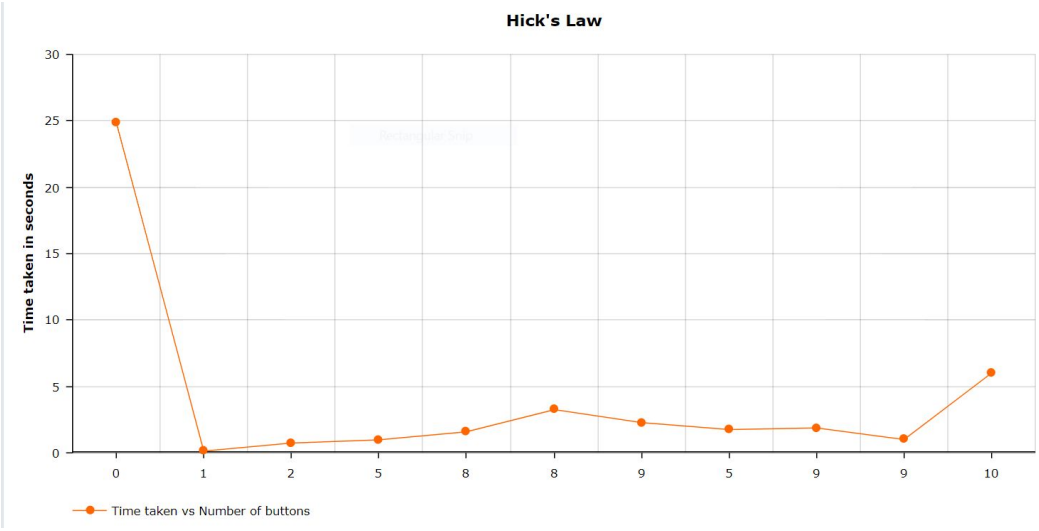

Fig 8. Graph for Hick's Law

Conclusion

It is observed that with more number of buttons, the time taken to select increases.

The greater the variety of buttons, the more difficult or time consuming it is to make a decision.

With homogeneity of buttons, time taken is less.

Fitts' Law

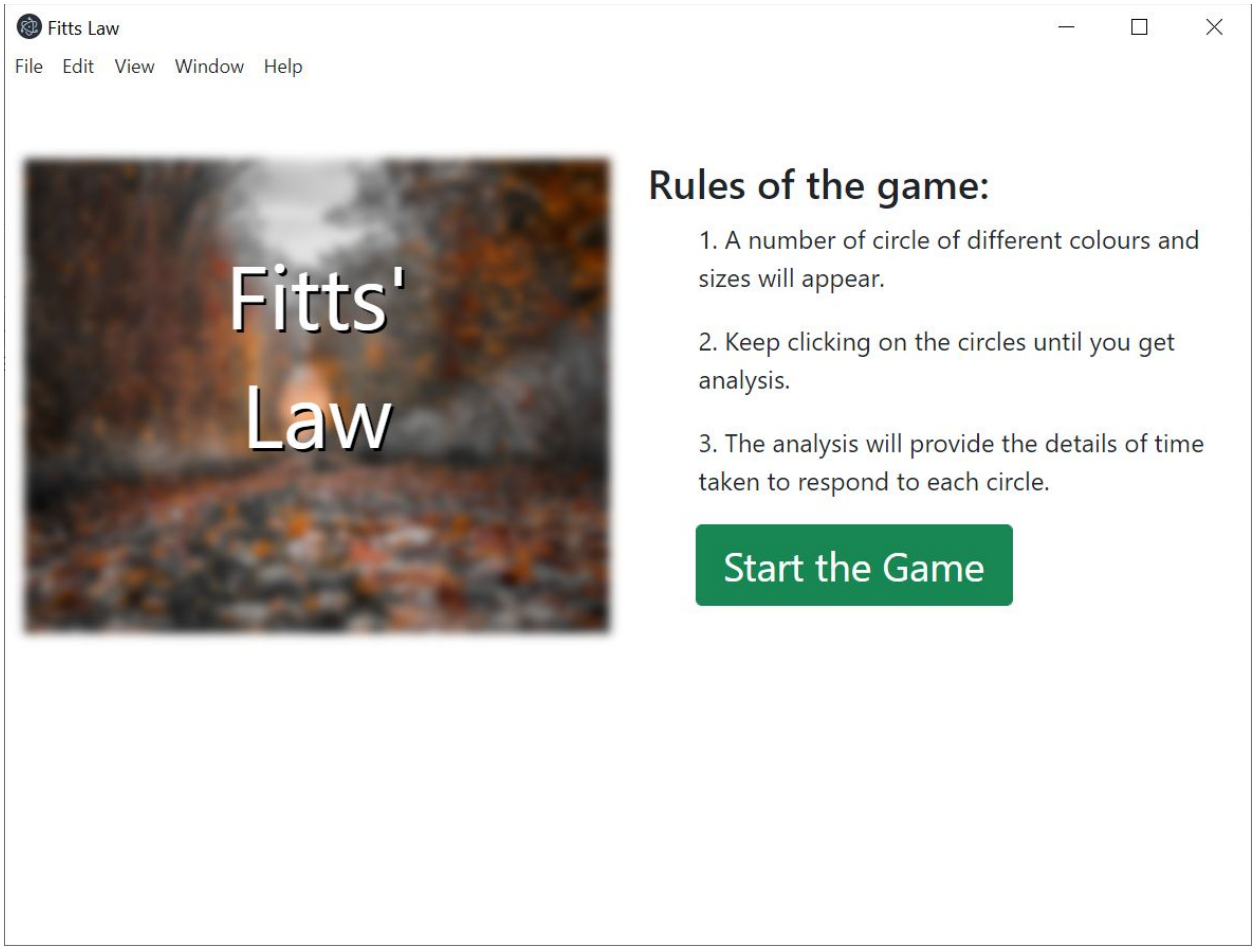

Fig 9. Fitts' Law Home Page

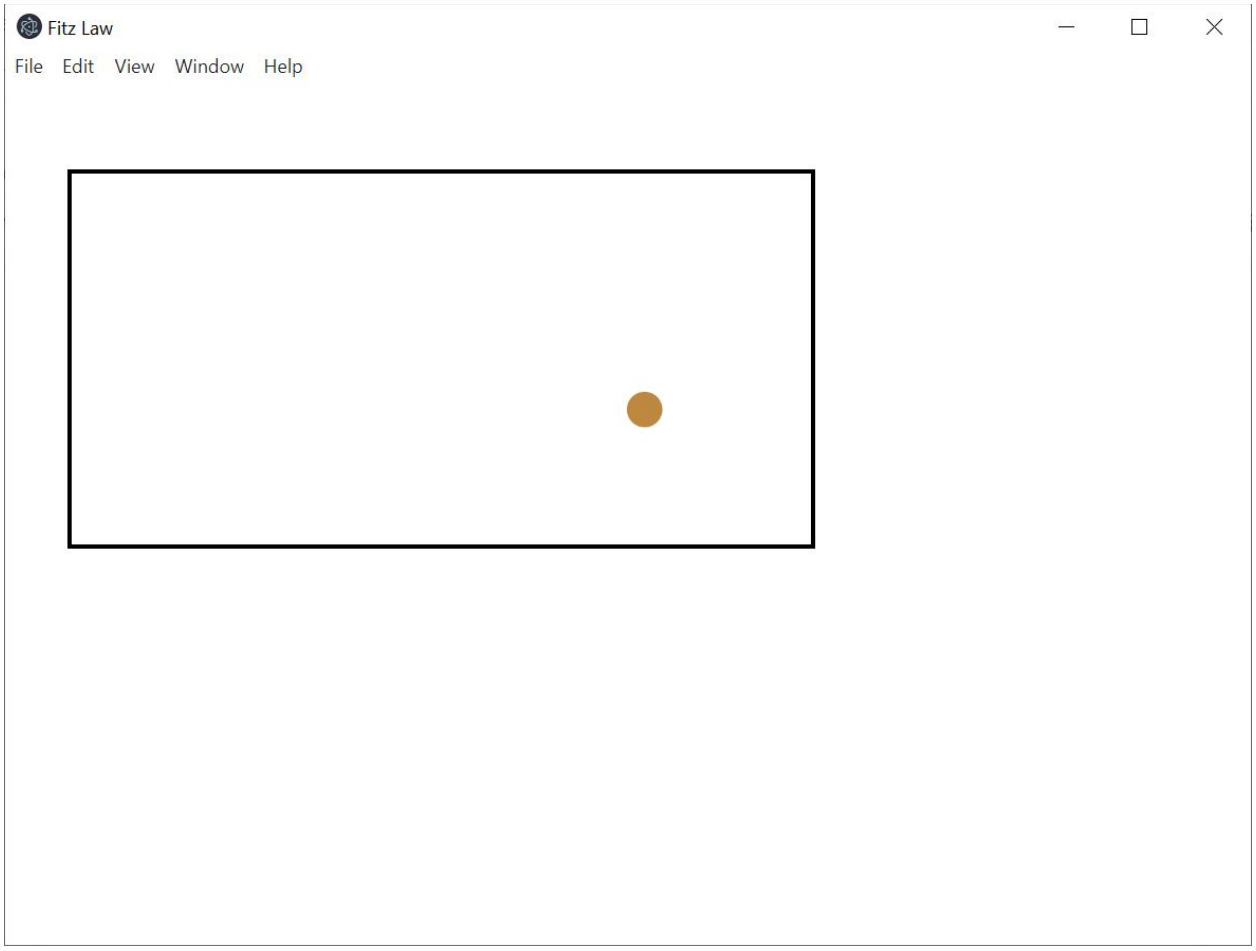

Fig 10. Fitts' Law Game Page

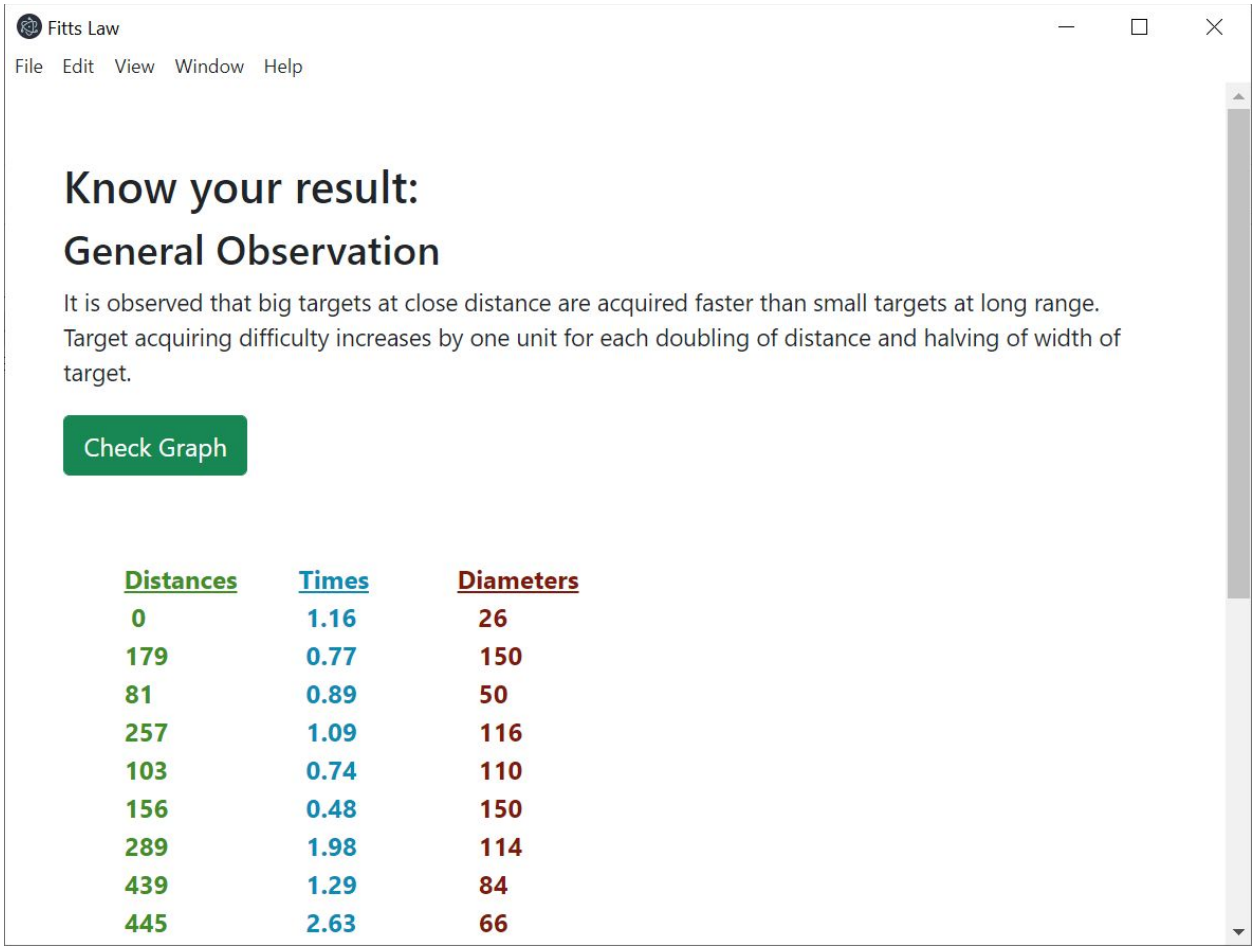

Fig 11. Results Page

Fig 12. Graph Page

Responsive Page

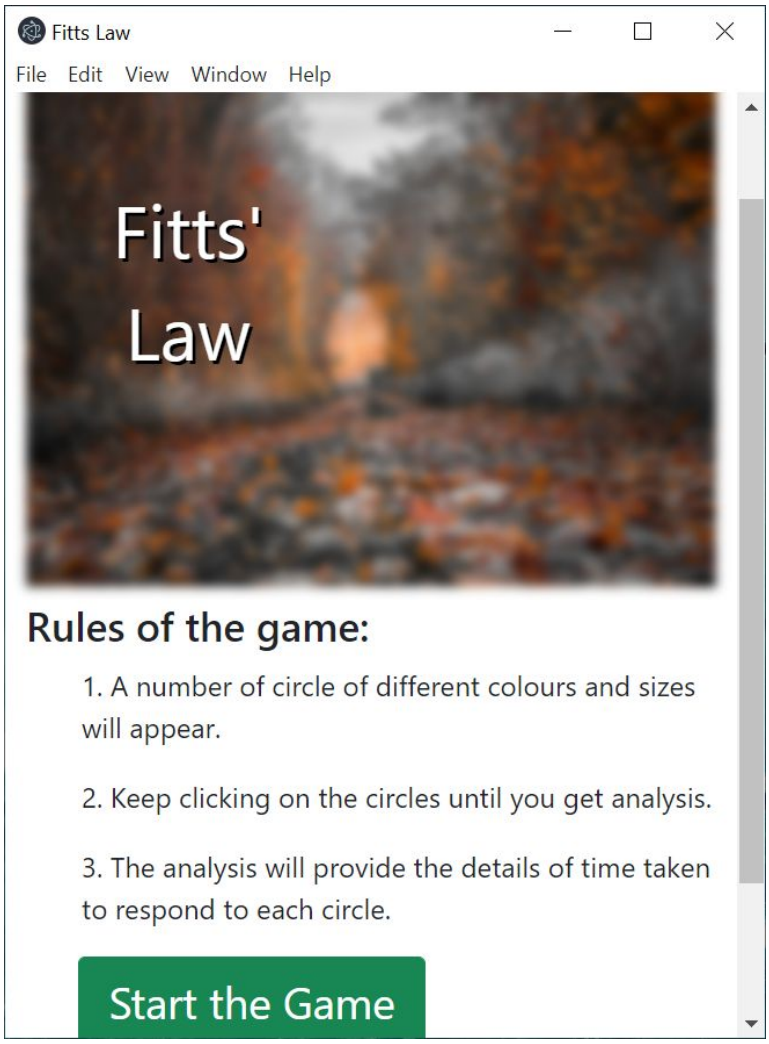

Fig 13. Responsive Home Page

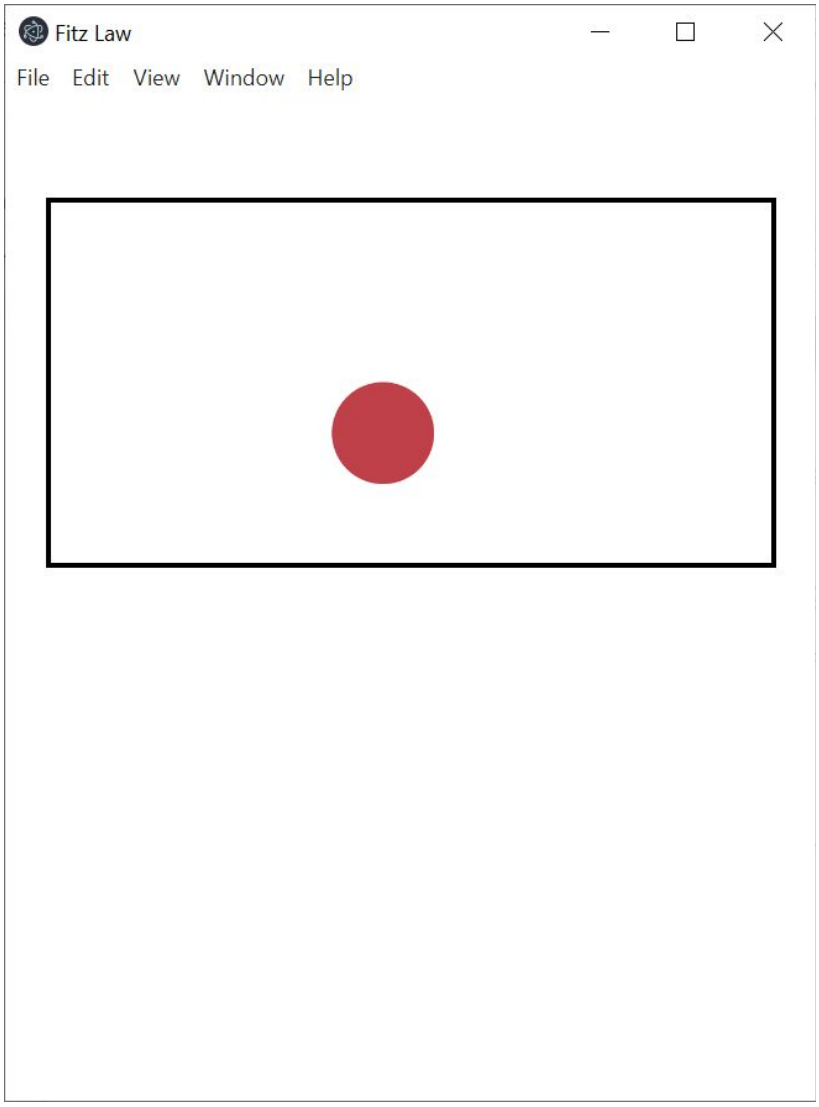

Fig 14. Responsive Game Page

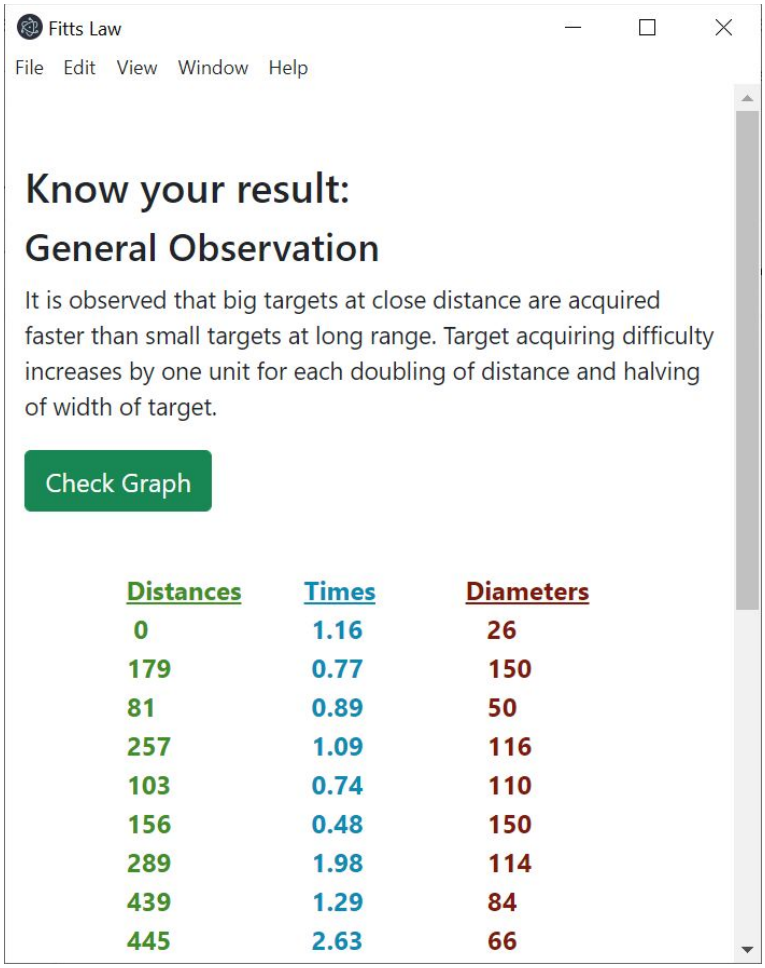

Fig 15. Responsive Results Page

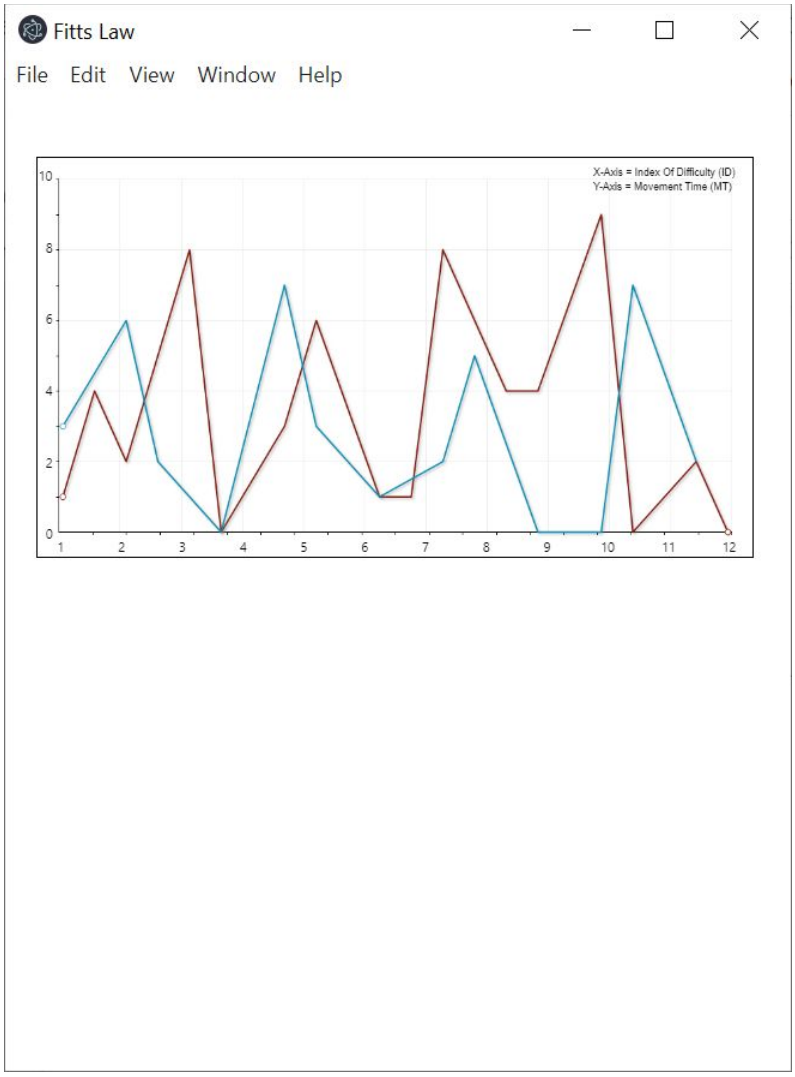

Fig 16. Responsive Graph Page

Conclusion

It is observed that with the increased distance between two circles, the index of difficulty increases. Hence the time taken is more.

Hence a good user interface should reduce the required travel distance from one location to another as the user navigates through the interface and maintains a proper size affordance for clicking.