Bryan Arnold
CSE 2100
Assignment #1: Birthday Paradox
9/7/2106
Instructor: Wei Wei

The purpose of this assignment is to simulate the birthday paradox. This is
that when there are at least 23 people in the room, the chance people sharing a birthday is 50%. The following is the output for my program, using the desired number of people such that n (people) is equal to 5, 10, 15, …, 100.

Note: I chose to take input from the user to test n for the desired values given to us. This was to avoid too much code in my main method, as well as make the program more interactive and specific for other and all values. Also note, the final n value of 100 would occasionally be 100%, but most of the time was 99.999%. This is due to variance between random experiments, which also means no other percentage is guaranteed to happen.

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Enter the number of people for the experiment: 5
For every 100,000 experiments with 5 people there were 2644 experiments where
two people shared the same birthday.
This can be seen as 2644/100000, or around a 2.644% chance for a group of 5
people to have at least one shared
birthday between two people.


Enter the number of people for the experiment: 10
For every 100,000 experiments with 10 people there were 11861 experiments
where two people shared the same birthday.
This can be seen as 11861/100000, or around a 11.861% chance for a group of
10 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 15
For every 100,000 experiments with 15 people there were 25471 experiments
where two people shared the same birthday.
This can be seen as 25471/100000, or around a 25.471% chance for a group of
15 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 20
For every 100,000 experiments with 20 people there were 41219 experiments
where two people shared the same birthday.
This can be seen as 41219/100000, or around a 41.219% chance for a group of
20 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 25
For every 100,000 experiments with 25 people there were 56749 experiments
where two people shared the same birthday.
This can be seen as 56749/100000, or around a 56.749% chance for a group of
25 people to have at least one shared
birthday between two people.
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Enter the number of people for the experiment: 30
For every 100,000 experiments with 30 people there were 70548 experiments
where two people shared the same birthday.
This can be seen as 70548/100000, or around a 70.548% chance for a group of
30 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 35
For every 100,000 experiments with 35 people there were 81322 experiments
where two people shared the same birthday.
This can be seen as 81322/100000, or around a 81.322% chance for a group of
35 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 40
For every 100,000 experiments with 40 people there were 89079 experiments
where two people shared the same birthday.
This can be seen as 89079/100000, or around a 89.079% chance for a group of
40 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 45
For every 100,000 experiments with 45 people there were 94219 experiments
where two people shared the same birthday.
This can be seen as 94219/100000, or around a 94.219% chance for a group of
45 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 50
For every 100,000 experiments with 50 people there were 97031 experiments
where two people shared the same birthday.
This can be seen as 97031/100000, or around a 97.031% chance for a group of
50 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 55
For every 100,000 experiments with 55 people there were 98604 experiments
where two people shared the same birthday.
This can be seen as 98604/100000, or around a 98.604% chance for a group of
55 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 60
For every 100,000 experiments with 60 people there were 99393 experiments
where two people shared the same birthday.
This can be seen as 99393/100000, or around a 99.393% chance for a group of
60 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 65
For every 100,000 experiments with 65 people there were 99793 experiments
where two people shared the same birthday.
This can be seen as 99793/100000, or around a 99.793% chance for a group of
65 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 70
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For every 100,000 experiments with 70 people there were 99912 experiments
where two people shared the same birthday.
This can be seen as 99912/100000, or around a 99.912% chance for a group of
70 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 75
For every 100,000 experiments with 75 people there were 99971 experiments
where two people shared the same birthday.
This can be seen as 99971/100000, or around a 99.971% chance for a group of
75 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 80
For every 100,000 experiments with 80 people there were 99984 experiments
where two people shared the same birthday.
This can be seen as 99984/100000, or around a 99.984% chance for a group of
80 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 85
For every 100,000 experiments with 85 people there were 99995 experiments
where two people shared the same birthday.
This can be seen as 99995/100000, or around a 99.995% chance for a group of
85 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 90
For every 100,000 experiments with 90 people there were 99997 experiments
where two people shared the same birthday.
This can be seen as 99997/100000, or around a 99.997% chance for a group of
90 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 95
For every 100,000 experiments with 95 people there were 99999 experiments
where two people shared the same birthday.
This can be seen as 99999/100000, or around a 99.999% chance for a group of
95 people to have at least one shared
birthday between two people.

Enter the number of people for the experiment: 100
For every 100,000 experiments with 100 people there were 99999 experiments
where two people shared the same birthday.
This can be seen as 99999/100000, or around a 99.999% chance for a group of
100 people to have at least one shared
birthday between two people.
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