The application starts off by creating a function that finds the median background of the entire video. The function is designed to randomly select 50 frames from the video and calculate the median of them as a baseline. This will be used to grayscale and then frame difference the average of several frames.

The next cell in the application contains the main function of the application. This is where all the background subtraction and frame differencing takes place. The function takes a certain number of frames as a parameter and converts them to grayscale. It then proceeds to convert each individual frame to grayscale and utilize the background subtraction and frame differencing techniques with the median frame that's been converted to grayscale. Then, the function dilates and sums the given number of frames in order to increase the contrast of the contours. This function then calculates the areas of the contours to see if they're worthy of drawing a bounding rectangle around or not.

This is where the main logic of the function comes into play. When the bounding rectangle is above a certain threshold area, it's drawn to the screen and four data points about it are saved as a tuple to a list. The four data points include the x and y coordinates of the upper left corner of the rectangle as well as the rectangle's width and height. The list of rectangles that meet the given requirements and are actually drawn to the screen are saved in the list so the next iteration of the for loop has a copy of them.

There is a certain area of the video screen that only bounding rectangles around cars going towards the city center would ever enter. If the upper left hand corner of a car's bounding rectangle enters this area then we can be fairly sure (with a high degree of accuracy) that this is a car headed towards the city center. This car is recorded in a variable to count the total number of cars headed towards the city center. The count is then divided by the total time of the video, converted to minutes, in order to calculate the cars per minute that are headed towards the city center.

	Total Number of Cars	Cars per Minute
Traffic_Laramie_1.mp4	6	2.023381
Traffic_Laramie_2.mp4	4	2.271007

The results of the given videos about car's headed towards the city center are listed in the table above.

The function sums the given number of grayscale frames in order to increase contrast. Otherwise, minor contours which are not actually substantial objects may be captured and perceived as relevant objects which a bounding rectangle should be drawn around.

Everytime the given number of frames is reached the list containing rectangle information is updated and this array is what's used to calculate whether or not a given car is headed towards the city center.