Student Information

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Answer 1

a) $N \geq 0.25(\frac{z_{\alpha/2}}{\epsilon})^2$ where;
$z_{\alpha/2} = 2.575$ and $\epsilon = 0.02$ Thus we have;
N $\geq$ 4144.140625
N = 4145 simulations

b)

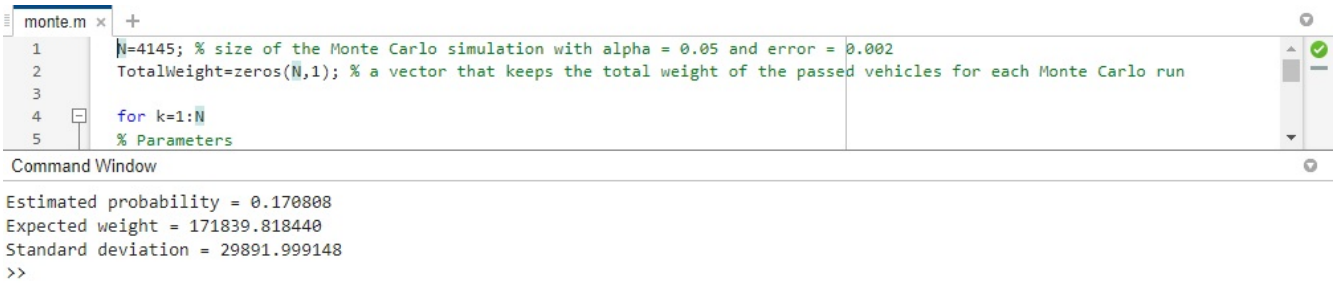
a E(x) = $\frac{\alpha}{\lambda}$ where $\alpha = 190$ and $\lambda = 0.15$
E(x) = 1266.66666667
E(x)≅ 1266.67 kg

b E(x) = $\frac{\alpha}{\lambda}$ where $\alpha = 110$ and $\lambda = 0.01$
E(x) = 11000 kg

c the total weights of all automobiles that pass over the bridge on a day equals $\lambda \cdot E(x)$ where $\lambda = 50$ and $E(x) = 1266.67$
=63333.5 kg

d the total weights of all trucks that pass over the bridge on a day equals $\lambda \cdot E(x)$ where $\lambda = 10$ and $E(x) = 11000$
=110000 kg

Answer 2



Estimation of the size of Monte Carlo study found by $N \geq 0.25(\frac{z_{\alpha/2}}{\epsilon})^2$
Parameters are :
Lambda for passing automobiles and trucks each day. In addition, we have to use lambdas and alphas to determine each vehicles weight.
TotalWeight=zeros(N,1) holds a a vector that keeps the total weight of the passed vehicles for each Monte Carlo run
U_a and U_t Generated Uniform variables i and j initial values
F_a and F_t Initial values, F(0)
Then we have 2 loops to estimate number of automobiles each day and number of trucks each day s,t and m The boundary of the rejection sampling rectangle
Again we have 2 loops to estimate weight of all automobiles and trucks each day
After $TotalWeight(k) = weight$; initialize weight of all automobiles and trucks each day to Total weight indexes
Lastly, print estimated probability that weight of all vehicles over 200 tons per day, expected weight of all vehicles each day and standard deviations of weight of all vehicles.