

General Instructions

- Any programming language can be used for the implementation of Question 1. For question two, Data Studio [tool](#) by Google should be used.
- Do it in groups of one/two but not in more than two
- CR will collect all the folders of all the groups in a pen-drive and submit it to me for evaluation maximum by 5pm.

Programming Instructions

- Note that all your programs should have proper alignment, indentation and proper comments.
 - All constants / variables / functions etc. should have meaningful names.
 - Overall, programs should be readable. If program fails to execute in the selected programming language, you will get zero for everything.
 - Submission files – A1Q1_YourNames_RollNos.extension, A1Q1_YourNames_RollNos_readme.txt, DataStudioLink
 - Read me files should give information about code, functions and data structures used, diagrammatic representation of the concepts, etc. You may refer to preparation of readme file from [here](#).
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Q1: A bee walks around on a honeycomb, an infinite tessalating hexagonal grid, starting at a fixed hexagon. At each step, the bee moves to one of the six adjacent hexagons with equal probability. If the adjacent hexagons are always a distance of one unit away from each other, then

- (a) After $T=16$ steps, what is the expected value of the bee's distance from the starting hexagon?
- (b) After $T=16$ steps, steps, what is the expected value of the deviation of the bee's distance from the starting hexagon?
- (c) After $T=64$ steps, what is the expected value of the bee's distance from the starting hexagon?

- (d) After $T=64$ steps, steps, what is the expected value of the deviation of the bee's distance from the starting hexagon?
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Q2. Go through the official [website](#) of CERT and prepare a dashboard using Data Studio Tool by Google on various types of threats emerging in past few years in India.

All the Best