Analysis: Circus Train Algorithm

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Course/Class: IN-SDE4

Date: 2026-02-27

Introduction

The Circus train challenge is an algorithmic problem, which combines logical thinking and programming skills. The condition is as simple as: "While there are animals, check for valid pair and then distribute in wagons, which will be transported, by calculating the size of each animal ensuring there is enough space in each wagon". This document presents some user stories, requirements and their prioritization.

Targeted users

Circus directors

Directors of circuses who need to transport all of their animals to, for instance, new circus, or simply help other circuses by transporting some of their animals.

Functional requirements

Pairing

Each animal pair is validated according to the animal's diet (Herbivore, Carnivore) and size (Small, Medium, Large), ensuring that all animals in a wagon are to be safely transported.

Sorting

Before adding any pair of animals to a wagon, that pair should not exceed the maximum capacity of the wagon if it does so the last pair of animals is moved to a new wagon, ensuring efficient wagon distribution.

User stories

Ref.	User story	Business value
1	'As a director I want to be able to distribute my animals safely, so that I can transport them.'	Ensuring efficient wagon distribution.
2	'As a director I want to know how many wagons I will need to transport my animals'.	Resource allocation.

MoSCoW prioritization

Must have	1, 2
Should have	……..
Could have	……..
Will/Wish have	……..

Technical requirements

C# Console app

Using only C# to build the isolated logic in Visual Studio using Console app.

Conclusion

The problem presents decent challenge for thinking algorithmically, considering resource management, efficiency and good programming warm-up.