No feasible solution example infeasible solution LPP

Maximise 200x1 + 300x2 subject to 2x1 + 3x2 ≤ 1200 2x1 + x2 ≤ 400

Solution after introducing slack, surplus and artificial variables, the problem can be presented as:

Maximise 200x1 + 300x2 subject to 2x1 + 3x2 ≤ 1200 x1, x2 ≥ 0

Simplex-based LP software like LpSolve efficiently detects when no feasible solution is possible. The source of infeasibility is often difficult to track down; it may stem from an error in specifying some of the constraints in your model or from some wrong numbers in your data. When I run the code with the given variables, the code says no feasible solution found, however, I know there is a solution for example, weights in the data matrix are:

x1 x2 0

and its dual minimizes z = 5y1 + 2y2

Such that y1 ≤ 1, y1 ≥ 1, y1 + y2 ≥ 0

Exercises:

1. Maximize z = x1 subject to x1 + x2 ≤ 2 and its dual minimizes z = 3y1 + 2y2

2. Show that it has no feasible solution using the simplex method. It seems very logical that it has no feasible solution if at least one of the artificial variables remains in the final simplex tableau as basic.

A linear programming problem is said to be infeasible if there is no solution that satisfies all the constraints, i.e., a state of inconsistency in the set of constraints. Under the simplex method, the problem is said to have no feasible solution if at least one of the artificial variables remains basic in the final simplex tableau. In this case, an algebraic specification of the problem is used to determine whether the extreme point is optimal or not.

With regards to linear optimization using the simplex method, can someone provide an example where both the primal and dual of problem a are infeasible, where both the primal and dual of problem b are unbounded?
decision variables can be identified through its graph if you only use this constraint the problem is infeasible if you use all constraints but this one it is feasible also if you change the rhs of the 5th constraint to 2 the problem becomes feasible as well original answer this is the mathematical formulation of your problem mercury e.g. in manometers chlorine calcium hypochlorite iodine bromine hydrofluoric acid anhydrous ammonium nitrate acids powdered metals flammable liquids chlorates nitrites sulfur finely divided organic combustible materials aniline nitric acid hydrogen peroxide waste is generated in the laboratory on a regular basis however not all waste is hazardous some chemicals can safely go in the trash can or can be disposed of down the sink verify the following guidelines with your local codes as restrictions may vary too concentrated of a solution can be harmful but too little can be ineffective never mix chemicals combining certain chemicals such as chlorine and ammonia for example can result in serious injury or death see table 1 for guidelines to prepare your own sanitizing solution

no feasible solution example simplex method Mar 22 2024

no feasible solution example infeasible solution lpp maximise 200x 1 300x 2 subject to 2x 1 3x 2 1200 x 1 x 2 400 2x 1 3 2x 2 900 x 1 x 2 0 solution after introducing slack surplus and artificial variables the problem can be presented as maximise 200x 1 300x 2 subject to 2x 1 3x 2 x 3 a 1 1200 x

infeasible models mit Feb 21 2024

simplex based lp software like lp solve efficiently detects when no feasible solution is possible the source of infeasibility is often difficult to track down it may stem from an error in specifying some of the constraints in your model or from some wrong numbers in your data

linprog says no feasible solution found even though there Jan 20 2024

when i run the code with the given variables the code says no feasible solution found however i know there is a solution for example weights in the data mat is a solution i changed the algorithm that i use but none of them worked i couldn t find the cause of this problem

duality theory brown university Dec 19 2023
x1 x2 0 and its dual minimize z 5y1 2y2 such that y1 2 y1 4 y1 y2 0 exercise here is an example where the primal is unbounded and the dual has no feasible solution maximize z x1 such that x1 3 x1 2 x1 0 and its dual minimize z 3y1 2y2 such that y1 y2 1 y1 y2 0

section 2 1 solving linear programming problems Nov 18 2023

given that an optimal solution to a linear programming problem exists it must occur at a vertex of the feasible set if the optimal solution occurs at two adjacent vertices of the feasible set then the linear programming problem has infinitely many solutions any point on the line segment joining the two vertices is also a solution

lecture 5 1 linear programming stanford university Oct 17 2023

a feasible solution is an assignment of values to the variables that satisfies the inequalities the value that the objective function gives to an assignment is called the cost of the assignment for example x1 1 3 and x2 1 is a feasible solution of cost 2 3 note that if x1 x2 are values that satisfy the 3

lec 4 graphical method linear programming problem no Sep 16 2023

this is lecture 4 on the operations research video series in this lecture we will learn the graphical method we can solve any linear programming problem u

linear programming show that it has no feasible solution Aug 15 2023

an optimization problem maximize z 8x 6y maximize z 8 x 6 y such that x y 0 6 and x y 2 such that x y 0 6 and x y 2 show that it has no feasible solution using simplex method it seems very logical that it has no feasible solution how can a value be less than 0 6 0 6 and greater than 2 2 at the same
Infeasible problem quantitative techniques theory and

A linear programming problem is said to be infeasible if there is no solution that satisfies all the constraints it represents. A state of inconsistency in the set of constraints is under the simplex method. The problem is said to have no feasible solution if at least one of the artificial variable remains in the final simplex table as basic.

Optimization simplex method algorithms mathematics

If no extreme point is given, a variant of the simplex method called phase I is used to find one or to determine that there are no feasible solutions. Next, using an algebraic specification of the problem, a test determines whether that extreme point is optimal.

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Feasible and infeasible solution in linear programming

Hence if no feasible solution can be constructed, then the lp is infeasible. Note that a real operation must remain within the constraints of reality. Hence infeasibility most often indicates an error of some kind; it may stem from an error in specifying some of the constraints or wrong numbers in the data.

Basic feasible solutions stanford university
step 5 basic feasible solution x is a basic feasible solution to a lp if x is a feasible solution there do not exist two other feasible solutions y z such that x y z 2 also known as vertex solution extreme point solution corner point solution

linear programming both primal and dual are infeasible  Feb 09 2023

ask question asked 1 year 6 months ago modified 1 year 5 months ago viewed 2k times 2 with regards to linear optimization using the simplex method can someone provide an example where both the primal and dual of problem a are infeasible where both the primal and dual of problem b are unbounded

linear programming how to prove feasibility computer  Jan 08 2023

aug 8 2022 at 11 06 to prove what user16034 aug 8 2022 at 11 14 to prove that for every feasible solution x of p1 there is a feasible solution y of p2 with f x g y jash shah

special cases in graphical method linear programming Dec 07 2022

in some cases there is no feasible solution area i.e. there are no points that satisfy all constraints of the problem an infeasible lp problem with two decision variables can be identified through its graph

r lpsolve returning error no feasible solution found  Nov 06 2022

if you only use this constraint the problem is infeasible if you use all constraints but this one it is feasible also if you change the rhs of the 5th constraint to 2 the problem becomes feasible as well original answer this is the mathematical formulation of your problem
list of incompatible chemicals laboratory safety Oct 05 2022

mercury e g in manometers chlorine calcium hypochlorite iodine bromine hydrofluoric acid anhydrous ammonium nitrate acids powdered metals flammable liquids chlorates nitrites sulfur finely divided organic combustible materials aniline nitric acid hydrogen peroxide

hazardous waste and disposal american chemical society Sep 04 2022

waste is generated in the laboratory on a regular basis however not all waste is hazardous some chemicals can safely go in the trash can or can be disposed of down the sink verify the following guidelines with your local codes as restrictions may vary

safe sanitizing and disinfecting safe food water Aug 03 2022

too concentrated of a solution can be harmful but too little can be ineffective never mix chemicals combining certain chemicals such as chlorine and ammonia for example can result in serious injury or death see table 1 for guidelines to prepare your own sanitizing solution

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