Luenberger Chapter 3 exercise 7 (p 68) asks for an algebraic proof:

Let A be an $m \times n$ matrix and c be an n-vector. Prove that $A\mathbf{x} \leq \mathbf{0}$ implies $\mathbf{c}^t \mathbf{x} \leq 0$ if and only if $\mathbf{c}^t = \mathbf{y}^t A$ for some $\mathbf{y} \geq \mathbf{0}$.

Consider this example.

$$\begin{bmatrix} 1 & 1 & 0 \\ 2 & 0 & -1 \end{bmatrix} \mathbf{x} \le \mathbf{0} \Rightarrow \begin{bmatrix} 3 & 1 & -1 \end{bmatrix} \mathbf{x} \le 0$$

because
$$\begin{bmatrix} 3 & 1 & -1 \end{bmatrix} = \begin{bmatrix} 1 & 1 \end{bmatrix} \begin{bmatrix} 1 & 1 & 0 \\ 2 & 0 & -1 \end{bmatrix}$$
.

(b) On the other hand,

$$\begin{bmatrix} 1 & 1 & 0 \\ 2 & 0 & -1 \end{bmatrix} \mathbf{x} \le \mathbf{0} \not\Rightarrow \begin{bmatrix} 2 & 1 & -1 \end{bmatrix} \mathbf{x} \le 0$$

because
$$\begin{bmatrix} 2 & 1 & -1 \end{bmatrix} \neq \begin{bmatrix} y_1 & y_2 \end{bmatrix} \begin{bmatrix} 1 & 1 & 0 \\ 2 & 0 & -1 \end{bmatrix}$$
.

For example,

$$\begin{bmatrix} 1 & 1 & 0 \\ 2 & 0 & -1 \end{bmatrix} \begin{bmatrix} -1 \\ 1 \\ -2 \end{bmatrix} \le \mathbf{0} \text{ but } \begin{bmatrix} 2 & 1 & -1 \end{bmatrix} \begin{bmatrix} -1 \\ 1 \\ -2 \end{bmatrix} = 1.$$

Find another vector $\mathbf{c}^t \neq \mathbf{y}^t A$ for any $\mathbf{y} \geq \mathbf{0}$ and show a vector \mathbf{x} such that $A\mathbf{x} \leq \mathbf{0}$ and $\mathbf{c}^t \mathbf{x} \not\leq 0$.

c) Now prove the general result as requested by Luenberger. You may find linear programming duality useful.

Luenberger Chapter Exercise Answer

Daniela Niemeyer

Luenberger Chapter Exercise Answer:

Embark on a transformative journey with is captivating work, Grab Your Copy of **Luenberger Chapter Exercise Answer**. This enlightening ebook, available for download in a convenient PDF format PDF Size: , invites you to explore a world of boundless knowledge. Unleash your intellectual curiosity and discover the power of words as you dive into this riveting creation. Download now and elevate your reading experience to new heights .

https://www.splashdogs.com/data/scholarship/HomePages/igcse%20maths%20nov%202008%20mark%20scheme.pdf

Table of Contents Luenberger Chapter Exercise Answer

- 1. Understanding the eBook Luenberger Chapter Exercise Answer
 - The Rise of Digital Reading Luenberger Chapter Exercise Answer
 - Advantages of eBooks Over Traditional Books
- 2. Identifying Luenberger Chapter Exercise Answer
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
- 3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Luenberger Chapter Exercise Answer
 - User-Friendly Interface
- 4. Exploring eBook Recommendations from Luenberger Chapter Exercise Answer
 - Personalized Recommendations
 - Luenberger Chapter Exercise Answer User Reviews and Ratings
 - Luenberger Chapter Exercise Answer and Bestseller Lists
- 5. Accessing Luenberger Chapter Exercise Answer Free and Paid eBooks
 - Luenberger Chapter Exercise Answer Public Domain eBooks
 - Luenberger Chapter Exercise Answer eBook Subscription Services
 - Luenberger Chapter Exercise Answer Budget-Friendly Options

- 6. Navigating Luenberger Chapter Exercise Answer eBook Formats
 - o ePub, PDF, MOBI, and More
 - Luenberger Chapter Exercise Answer Compatibility with Devices
 - Luenberger Chapter Exercise Answer Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - o Adjustable Fonts and Text Sizes of Luenberger Chapter Exercise Answer
 - Highlighting and Note-Taking Luenberger Chapter Exercise Answer
 - Interactive Elements Luenberger Chapter Exercise Answer
- 8. Staying Engaged with Luenberger Chapter Exercise Answer
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Luenberger Chapter Exercise Answer
- 9. Balancing eBooks and Physical Books Luenberger Chapter Exercise Answer
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Luenberger Chapter Exercise Answer
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Luenberger Chapter Exercise Answer
 - Setting Reading Goals Luenberger Chapter Exercise Answer
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Luenberger Chapter Exercise Answer
 - Fact-Checking eBook Content of Luenberger Chapter Exercise Answer
 - Distinguishing Credible Sources
- 13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
- 14. Embracing eBook Trends
 - Integration of Multimedia Elements

Interactive and Gamified eBooks

Luenberger Chapter Exercise Answer Introduction

In this digital age, the convenience of accessing information at our fingertips has become a necessity. Whether its research papers, eBooks, or user manuals, PDF files have become the preferred format for sharing and reading documents. However, the cost associated with purchasing PDF files can sometimes be a barrier for many individuals and organizations. Thankfully, there are numerous websites and platforms that allow users to download free PDF files legally. In this article, we will explore some of the best platforms to download free PDFs. One of the most popular platforms to download free PDF files is Project Gutenberg. This online library offers over 60,000 free eBooks that are in the public domain. From classic literature to historical documents, Project Gutenberg provides a wide range of PDF files that can be downloaded and enjoyed on various devices. The website is user-friendly and allows users to search for specific titles or browse through different categories. Another reliable platform for downloading Luenberger Chapter Exercise Answer free PDF files is Open Library. With its vast collection of over 1 million eBooks, Open Library has something for every reader. The website offers a seamless experience by providing options to borrow or download PDF files. Users simply need to create a free account to access this treasure trove of knowledge. Open Library also allows users to contribute by uploading and sharing their own PDF files, making it a collaborative platform for book enthusiasts. For those interested in academic resources, there are websites dedicated to providing free PDFs of research papers and scientific articles. One such website is Academia.edu, which allows researchers and scholars to share their work with a global audience. Users can download PDF files of research papers, theses, and dissertations covering a wide range of subjects. Academia.edu also provides a platform for discussions and networking within the academic community. When it comes to downloading Luenberger Chapter Exercise Answer free PDF files of magazines, brochures, and catalogs, Issuu is a popular choice. This digital publishing platform hosts a vast collection of publications from around the world. Users can search for specific titles or explore various categories and genres. Issuu offers a seamless reading experience with its user-friendly interface and allows users to download PDF files for offline reading. Apart from dedicated platforms, search engines also play a crucial role in finding free PDF files. Google, for instance, has an advanced search feature that allows users to filter results by file type. By specifying the file type as "PDF," users can find websites that offer free PDF downloads on a specific topic. While downloading Luenberger Chapter Exercise Answer free PDF files is convenient, its important to note that copyright laws must be respected. Always ensure that the PDF files you download are legally available for free. Many authors and publishers voluntarily provide free PDF versions of their work, but its essential to be cautious and verify the authenticity of the source before downloading Luenberger Chapter Exercise Answer. In conclusion, the internet offers numerous platforms and websites that allow users to download free PDF files legally. Whether

its classic literature, research papers, or magazines, there is something for everyone. The platforms mentioned in this article, such as Project Gutenberg, Open Library, Academia.edu, and Issuu, provide access to a vast collection of PDF files. However, users should always be cautious and verify the legality of the source before downloading Luenberger Chapter Exercise Answer any PDF files. With these platforms, the world of PDF downloads is just a click away.

FAQs About Luenberger Chapter Exercise Answer Books

What is a Luenberger Chapter Exercise Answer PDF? A PDF (Portable Document Format) is a file format developed by Adobe that preserves the layout and formatting of a document, regardless of the software, hardware, or operating system used to view or print it. How do I create a Luenberger Chapter Exercise Answer PDF? There are several ways to create a PDF: Use software like Adobe Acrobat, Microsoft Word, or Google Docs, which often have built-in PDF creation tools. Print to PDF: Many applications and operating systems have a "Print to PDF" option that allows you to save a document as a PDF file instead of printing it on paper. Online converters: There are various online tools that can convert different file types to PDF. **How do I edit a Luenberger Chapter Exercise Answer PDF?** Editing a PDF can be done with software like Adobe Acrobat, which allows direct editing of text, images, and other elements within the PDF. Some free tools, like PDFescape or Smallpdf, also offer basic editing capabilities. How do I convert a Luenberger Chapter Exercise Answer PDF to another file format? There are multiple ways to convert a PDF to another format: Use online converters like Smallpdf, Zamzar, or Adobe Acrobats export feature to convert PDFs to formats like Word, Excel, IPEG, etc. Software like Adobe Acrobat, Microsoft Word, or other PDF editors may have options to export or save PDFs in different formats. How do I password-protect a Luenberger Chapter Exercise Answer PDF? Most PDF editing software allows you to add password protection. In Adobe Acrobat, for instance, you can go to "File" -> "Properties" -> "Security" to set a password to restrict access or editing capabilities. Are there any free alternatives to Adobe Acrobat for working with PDFs? Yes, there are many free alternatives for working with PDFs, such as: LibreOffice: Offers PDF editing features. PDFsam: Allows splitting, merging, and editing PDFs. Foxit Reader: Provides basic PDF viewing and editing capabilities. How do I compress a PDF file? You can use online tools like Smallpdf, ILovePDF, or desktop software like Adobe Acrobat to compress PDF files without significant quality loss. Compression reduces the file size, making it easier to share and download. Can I fill out forms in a PDF file? Yes, most PDF viewers/editors like Adobe Acrobat, Preview (on Mac), or various online tools allow you to fill out forms in PDF files by selecting text fields and entering information. Are there any restrictions when working with PDFs? Some PDFs might have restrictions set by their creator, such as password protection, editing restrictions, or print restrictions. Breaking these restrictions might require specific software or tools, which may or may not be legal depending on the circumstances and local laws.

Find Luenberger Chapter Exercise Answer:

igcse maths nov 2008 mark scheme igcse question papers chemistry

ih dt 530 service manual

ignition adapter schematic diagram

illinois civil service test study guide

illinois content test study guide

igcse ict 2october november paper 2

igcse chemistry jan 2014 grade boundaries

ileap practice test 6th grade science

illustrator diagonal guide

ignatavicius medical surgical nursing 6th edition test bank

illusion chronicles of nick

ikea bookshelf standing desk

igcse past papers exams maths 2013 core

ih international 684 784 884 tractors shop service repair manual

Luenberger Chapter Exercise Answer:

free download mercedes benz maintenance repair manual pdf - Jun 23 2022

web download mercedes workshop repair manual download 2019 mercedes097z005 download mercedes workshop repair manual download 2019 mercedes097z006

mercedes workshop repair owners manuals 100 free - Oct 08 2023

web our mercedes automotive repair manuals are split into five broad categories mercedes workshop manuals mercedes owners manuals mercedes wiring diagrams

owner s manuals mercedes benz usa - Jan 19 2022

mercedes benz w124 pdf service manuals free - Jul 25 2022

web download mercedes owner manual for free pdf below you will find a list of the sites where you can download the mercedes benz pdf owner s manual operator

mercedes benz service manual repair manual - Jul 05 2023

web mercedes workshop repair manuals owners manuals and other free downloads

mercedes benz owner s manuals mercedes benz passenger cars - Apr 21 2022

web mercedes benz owner s manuals view manuals online or download pdf for free choose your car a class b class c class e class glk gle glb eqb eqc amg

all mercedes benz owners manuals owner s manuals - Dec 18 2021

mercedes benz service repair manual download pdf tradebit - Aug 26 2022

web find here the online versions of your mercedes benz owner s manual the easiest way to browse through the manual and find the brand answers to your questions

mercedes benz repair and service pdf manuals - Sep 26 2022

web may 11 2018 mercedes benz c class service repair manuals free download mercedes benz c class w202 1993 2000 repair manual mercedes benz c class

download mercedes repair manual pdf free 2023 - Nov 16 2021

mercedes benz service workshop manuals owners manual pdf - May 23 2022

web get in touch with a customer service representative specially trained to help you with a variety of needs contact us your mercedes benz owner s manual is your go to

mercedes workshop and owners manuals free car repair - May 03 2023

web feb 2 2019 i ve got the complete workshop service repair manual for the 1989 to 2008 mercedes benz models 129 140 163 164 170 171 202 203 208 209 210 211 215

mercedes benz free download pdf manuals - Sep 07 2023

web jun 15 2022 mercedes repair manual free download includes circuit diagrams of signal systems mechanical diagrams of vehicle systems disassembly of components for

download mercedes repair manual pdf free 2023 dealer - Aug 06 2023

web free online pdf for mercedes benz workshop manuals mercedes benz oem repair manuals mercedes benz shop manuals mercedes benz electrical wiring diagrams

mercedes benz workshop manuals free factory service - Jan 31 2023

web mercedes sprinter workshop repair and owners manuals for all years and models free pdf download for thousands of cars and trucks

mercedes benz service repair manuals pdf motor - Dec 30 2022

web 2017 gs4 4a15m1 enine repair manual or complete vehicle repair manual 110 clarence harrell saturday 01 april 2023 05 38

woooo free repair manuals for any car online mercedes - Mar 01 2023

web 1973 1980 mercedes benz 450slc service repair manual 32 99 items 1 24 of 8186 page 1 342 land sea and air is the symbolism behind what is known as innovation

mercedes benz workshop service and repair manuals - Apr 02 2023

web mercedes benz workshop manuals and factory service manuals find all our mercedes benz workshop manuals and factory service manuals listed above all our mercedes

download mercedes owner manual for free pdf mb medic - Mar 21 2022

web jun 15 2022 mercedes repair manual free download includes circuit diagnostic of message systems mechanic diagrams in vehicle systems disassembly of components

mercedes workshop repair manual download 2019 pdf scribd - Feb 17 2022

mercedes benz service repair manuals free pdf - Jun 04 2023

web free online service and repair manuals for all models 260e 124 026 l6 2 6l 103 940 1988 600sel 140 057 v12 6 0l 120 980 1993 glk 350 4matic 204 987 v6

cars mercedes service repair workshop manuals - Nov 28 2022

web mercedes benz service repair manuals on tradebit tradebit offers hundreds of auto service repair manuals for your mercedes benz download your manual now 170 v

mercedes sprinter free workshop and repair manuals - Oct 28 2022

web jan 7 2023 $\,$ mercedes benz maintenance repair manual pdf information documentation of repair and maintenance for all mercedes models such as c200

excel cable schedule or similar electricians forums electrical - Dec 28 2021

web aug 21 2023 looking for either a good excel template or a nice piece of software to create a cable schedule with the usual to from and cable size etc termination details anyone have one or knows of any downloads

power cable schedule format pdf energy technology - Jan 09 2023

web 7271027 power cable schedule format free download as excel spreadsheet xls pdf file pdf text file txt or view

presentation slides online cable

electrical ms excel spreadsheets electrical engineering portal - Aug 16 2023

web aug 27 2023 these spreadsheets below will make your job much easier allowing you to shorten the time used for endless calculations of cables voltage drop various selections of circuit breakers capacitors cable size and so on electrical tools

10 electrical ms excel spreadsheets calculations of cables - Jun 14 2023

web sep 3 2019 these spreadsheets below will make your job much more easier allowing you to shorten the time used for endless calculations of cables voltage drop various selections of circuit breakers capacitors cable size and so on download electrical cable size calculator excel mep work - Sep 05 2022

web jan 18 2019 download free excel program for cable sizing calculation the spreadsheet calculates cable size according to length amperage temperature and number group cables all data used in this excel sheet are according to iee download also cable tray sizing and also short circuit current calculator excel sheets

cable schedules electricalom user manual - Feb 10 2023

web cable schedule window toolbar has export and export excel facilities to export the cable schedule table to cad or ms excel format export excel button will run ms excel instead of saving the schedule as a file directly the user must have ms excel installed on the system before running this command

list of instrumentation project engineering documents inst tools - Feb 27 2022

web instrument bom is the document that mainly covers cable trays junction boxes tubes pipes fittings air headers cable glands hook up materials stanchions steel required for erection purposes the main data must include in instrument bom is as follows item description size of the item material of the item

cable designing program spreadsheet electrical engineering - Oct 06 2022

web there are many packages on the market that will calculate your cable size volt drop etc but at the end of the day you need to know what your doing even the best packages will throw up errors in calculations and if using these packages you need to be knowledgeable to validate the output

what is cable schedule and junction box schedule inst tools - Jul 15 2023

web cable schedule is a document containing a list of instrument cables this document shows cable as well as gland required by each instrument or connection the information of the cable schedule consists cable number cable type specification cable size cable length source and destination termination description

cable size calculation spreadsheet eloquens - Jun 02 2022

web nov 29 2017 excel electrical engineering calculations spreadhseet cable size description the sheet works with a series

of input data giving you a number of calculated values input data motor voltage v l l motor horsepower cable temperature rating c ambient temperature c cable length ft and acceptable voltage drop

cable schedule software your cad wiring dwg cables in excel - Mar 31 2022

web automatically in 1 click tvcad is cable schedule software used by foxtel fox sports abc tv australia telstra techtel nep and others to parse the data from their wiring cad drawings to create cable schedules automatically with one click the automated cable schedules are 100 accurate tvcad never gets bored sick or takes holidays

solved how to import cable schedule in excel to existing wiring - Jul 03 2022

web jan 10 2018 how to import cable schedule in excel to existing wiring schematic dwg it pretty much says it in the title i have a wiring schematic drawing and have an excel sheet with all the cable lengths connectors cable type rating etc and i would like to import them into the drawing so they show up as attributes the wires in the drawing are simply **sawater home** - May 13 2023

web 6 do not add any additional sheets to the workbook as they will be deleted when a new cable schedule is generated cable numbers cables connecting equipment external to switchboards or control panels shall be labelled as per ts0300 troubleshooting contact the sa water principal electrical engineer for any technical issues regarding this template cable schedules power cable equipment configurator pdu cables - Nov 07 2022

web use excel or other applications such support the xls file format to view edit and print the cable schedule additional resources the movie down shows wie in use the cable label tool to set start middle furthermore end labels over or absent sequential numbered and covers generated of a cable schedule from a block schematic drawing

power cable schedule format pdf energy technology - May 01 2022

web power cable schedule format free download as excel spreadsheet xls pdf file pdf text file txt or read online for free one can make the power cable schedule in this format after that it will give the boq bill of qty automaticly also the the error if happens

resources rmit - Mar 11 2023

web electrical drawings cable schedule a cable schedule is a table of information about cables for a particular installation this can relate to cables for power lighting communication security fire etc a building floor plan would often be associated with the cable schedule and the type of information shown could include length type and cables database tool for design of cables connections laying - Apr 12 2023

web nov 26 2020 some of the cable database s features entering the cable connection scheme by the designer summarizing all types of cables and cable glands for ordering purchase monitoring the consumption of cables of certain types from the drum the date of laying the current length of the cable etc

electrical design cable sizing and certification software - Dec 08 2022

web a new excel template distribution cable schedules is added to excel templates this report will populate a spreadsheet on which the cables associated with distribution circuits will be listed modecsoft electricalom is a powerful fast accurate software for low voltage electrical design modeling and certification calculations and

cable schedule checklist electrical engineering - Aug 04 2022

web march 5 2021 this checklist will be an aid to maintain quality design of electrical cable schedule read more list of all checklists

what is cable schedule in instrumentation instrumentation - Jan 29 2022

web jan 6 2020 cable schedule is a document containing list of instrument cable this document shows cable as well as gland required by each instrument or connection the information of the cable schedule shall consists cable numb stats data and models 9780321782700 exercise 3 quizlet - Dec 07 2022

web find step by step solutions and answers to exercise 3 from stats data and models 9780321782700 as well as thousands of textbooks so you can move forward with

stats data and models 3rd edition solutions rar - Dec 27 2021

web stats data and models 3rd edition solutions rar author blogs post gazette com 2023 02 23t00 00 00 00 01 subject stats data and models 3rd edition solutions rar

stats data and models 4th edition solutions studysoup - Apr 30 2022

web textbook answers statistics stats data and models 4th edition solutions author richard d de veaux paul f velleman david e bock publisher pearson isbn

stats data and models third canadian edition google books - Jan 28 2022

web jan 15 2018 stats data and models third canadian edition richard d de veaux paul f velleman david e bock augustin m vukov augustine c m wong pearson

stats data and models icdst - Mar 30 2022

web contents chapter 1 stats starts here 1 chapter 2 displaying and describing categorical data 6 chapter 3 displaying and summarizing quantitative data 23 chapter 4

stats data and models buy 9780321692559 chegg com - Jul 02 2022

web dec 29 2010 rent stats 3rd edition 978 0321692559 today or search our site for other textbooks by richard d de veaux every textbook comes with a 21 day any reason

student solutions manual for stats data and models - Nov 25 2021

web dec 29 2010 stats data and models 284 16 38 only 2 left in stock stats data and models third edition will intrigue and

challenge students by encouraging them to think

stats data and models third canadian edition - May 12 2023

web stats data and models third canadian edition if anyone has a copy of stats data and models third canadian edition by richard d de yeaux and co would be much

student solutions manual for stats data and models third - Sep 23 2021

stats data and models canadian 3rd edition de veaux solutions - Sep 04 2022

web jan 2 2020 stats data and models canadian 3rd edition de veaux solutions manual full download alibabadownload com product stats data and models canadian

stats data and models 5th edition pearson - Nov 06 2022

web jul 15 2020 paul f velleman cornell university richard d de veaux williams college floyd bullard north carolina school of science and mathematics best value

solved chapter 15 problem 31e solution student solutions - Jan 08 2023

web access student solutions manual for stats data and models 3rd edition chapter 15 problem 31e solution now our solutions are written by chegg experts so you can be

chapter 4 problem 1e solution student solutions manual for - Mar 10 2023

web access student solutions manual for stats data and models 3rd edition chapter 4 problem 1e solution now our solutions are written by chegg experts so you can be

stats data and models 3rd edition hardcover dec 29 2010 - Oct 25 2021

web jan 10 2018 student solutions manual for stats data and models third canadian edition paperback jan 10 2018 student solutions manual for stats data and models 3rd edition - Jul 14 2023

web our interactive player makes it easy to find solutions to student solutions manual for stats data and models 3rd edition problems you re working on just go to the chapter

solved chapter 17 problem 31re solution student solutions - Feb 09 2023

web access student solutions manual for stats data and models 3rd edition chapter 17 problem 31re solution now our solutions are written by chegg experts so you can be

stats data and models 3rd edition de veaux solutions manual - Oct 05 2022

web apr 13 2019 how the data is collected from the manufacturer of each model variables there are six variables city mileage highway mileage weight and horsepower are

stats data and models de veaux richard d archive org - Apr 11 2023

web 1 online resource 905 pages stats data and models third edition will intrigue and challenge students by encouraging them to think statistically and by emphasizing how

stats data and models 9780321692559 exercise 3 quizlet - Jun 01 2022

web find step by step solutions and answers to exercise 3 from stats data and models 9780321692559 as well as thousands of textbooks so you can move forward with

stats data and models 3rd edition chapter 2 gradesaver - Aug 03 2022

web stats data and models 3rd edition answers to chapter 2 data exercises page 15 1 including work step by step written by community members like you textbook authors

stats data and models 3rd edition solutions rar - Feb 26 2022

web read online stats data and models 3rd edition solutions rar is next one of the windows to attain and get into the world reading this book can urge on you to find supplementary

stats data and models 3rd edition solutions and answers - Jun 13 2023

web now with expert verified solutions from stats data and models 3rd edition you ll learn how to solve your toughest homework problems our resource for stats data and

stats data and models 3rd edition solutions and answers - Aug 15 2023

web now with expert verified solutions from stats data and models 3rd edition you ll learn how to solve your toughest homework problems our resource for stats data and