

Acme Publishing Co: Problem	2
Deliverables:	4
Acme Publishing: Analysis & Design	5
Acme Publishing Problem Notes Reformat To Requirement List	6
Acme Publishing: Database Design	11
Acme Publishing: Architectural Design	13
Acme Publishing: Code	16
Acme Publishing: Running The Monthly Process	17
Acme Publishing: Development Notes	20

Acme Publishing Co: Problem

Problem:

ACME Publishing Co. has a variety of **publications** that it distributes to **retailers**. The **company** is about to begin operations in the **home delivery subscription** market.

The company requires a **database** to store **customer** information along with their **subscriptions** to the various **magazines**. A **customer** can have a different delivery **address** for each **subscription**.

The company will utilize several different **print-distribution companies** to print and deliver the **magazines** to **subscribers**. The print-distribution **company** that is used is determined by which **publication** is to be produced and the **country** of the **delivery address**.

The print-distribution **companies** all have their own APIs; Whilst they are all different, they all provide some way for the **publishing company** to send an **individual request** for a particular **publication** to be printed and sent to a particular **customer**.

In addition to the database creation, the **company** also requires a piece of software to run every **month** that will send **requests** to the appropriate **print-distribution companies** for each of the active **subscriptions** stored in the database.

Additional **print-distributors** may be implemented in future; An application for managing **customers** and **subscriptions** as well as for updating **distributors' publications & delivery countries** will be implemented in future.

Objective:

The purpose of this exercise is to enable you to demonstrate your proficiency in solving problems using software engineering techniques and processes.

Your response should include:

- a database diagram;
- code for the main process logic and any relevant classes;
- only **placeholders** are needed where the implementation of the print-distributors' APIs would be;
- a description of how the process is run each month is required.

The aspects of your solution that are of interest include:

- Your ability to read and interpret the problem
- The architectural design of your solution
- Your overall approach to the exercise and your methodologies

- Appropriate use of advanced programming techniques

As a guide you should spend approximately 90 minutes on this task.

Deliverables:

- ☒ Database diagram
- ☒ Architectural design
- ☒ Code
 - ☒ Main process logic
 - ☒ Relevant classes
 - ☐ Print-distributor API place holders
- ☒ Monthly process run description

Acme Publishing: Analysis & Design

Acme Publishing Problem Notes Reformat To Requirement List

Problem As List:

1. **ACME Publishing Co.** has a variety of **publications** that it distributes to **retailers**.
2. The **company** is about to begin operations in the **home** delivery subscription market.
3. The company requires a **database**
4. to store **customer** information
5. along with their **subscriptions**
6. to the various **magazines**.
7. A **customer** can have a
8. different delivery **address**
9. for each **subscription**.
10. The company will utilize several different **print-distribution companies**
11. to print
12. and deliver
13. the **magazines**
14. to **subscribers**.
15. The print-distribution **company**
16. that is used is determined
17. by which **publication**
18. is to be produced
19. and the **country** of the **delivery address**.
20. The print-distribution **companies** all have their own APIs;
21. Whilst they are all different, they all
22. provide some way
23. for the **publishing company**
24. to send an **individual request**
25. for a particular **publication**
26. to be printed and sent
27. to a particular **customer**.
28. In addition to the database creation,
29. the **company** also requires a
30. piece of software
31. to run
32. every **month**
33. that will send **requests**
34. to the appropriate **print-distribution companies**
35. for each of the active **subscriptions**
36. stored in the database.
37. Additional **print-distributors**
38. may be implemented in future;

39. An application for
40. managing
41. **customers** and
42. **subscriptions**
43. as well as for updating distributors' publications
44. & delivery countries will be implemented in future.

List Commentary

1. **ACME Publishing Co.** has a variety of **publications**
 - a. Is this a required entity & feature - CRUD ?
 - b. What attributes?
2. that it distributes to **retailers**.
 - a. Is this a required entity & feature - CRUD ?
 - b. Are retailers to be considered for this problem solution?
 - c. Do we need to manage the 'distributing' activity?
3. The **company** is about to begin operations in the **home** delivery subscription **market**.
 - a. Company = Acme Publishing
 - b. Is there a formal list of operations?
 - c. Is there a definition or limit to what is considered a 'home'?
 - d. Is there a phased approach to this effort?
 - e. What defines the market?
 - f. Assume subscription to existing publications
4. The company requires a **database**
 - a. Requirement
 - b. No mention of hosting, admin or data security requirements
 - i. Use out of the box encryption of identifiable data
5. to store **customer** information
 - a. Required entity & feature - CRUD
 - b. Who will generate and manage this information
 - c. Which specific attributes?
 - d. Is a customer different to a retailer
6. along with their **subscriptions**
 - a. Required entity & feature - CRUD
 - b. as per 5.b, 5.c
7. to the various **magazines**.
 - a. Required entity & feature - CRUD
 - b. as per 5.b, 5.c
8. A **customer** can have a
 - a. Mentioned in point 5
9. different delivery **address**
 - a. Required entity & feature - CRUD
 - b. as per 5.b, 5.c
10. for each **subscription**.
 - a. Mentioned in 6

- b. Is address related only to a subscription?
- c. Does a customer have a default address?
- 11. The company will utilize several different **print-distribution companies**
 - a. 3rd Party, are there any service level agreements that need to be measured
 - b. Should a company have a type? E.g. print-distribution or retailer?
 - c. Required entity & feature - CRUD
- 12. to print
 - a. Service to be called on the 3rd party
 - b. Does it need a status or monitoring
- 13. and deliver
 - a. Service to be called on the 3rd party
 - b. Does it need a status or monitoring
 - c. Are there other services now or in future?
- 14. the **magazines**
 - a. Mentioned in 7
- 15. to **subscribers**.
 - a. Mentioned in 6
- 16. The print-distribution **company**
 - a. Mentioned in 10
- 17. that is used is determined
 - a. Required feature
 - b. Action or internal service
- 18. by which **publication**
 - a. Mentioned in 1
- 19. is to be produced
 - a. Service or activity?
 - b. Does this need to be managed?
- 20. and the **country** of the **delivery address**.
 - a. Required entity & feature - CRUD
 - b. Delivery address country to be compared to print-distribution company's country
 - i. Assume this the company's country of their local address and a not a country that company services?
 - ii. What if there are two companies in a single location?
 - 1. Are there rules for what companies can be created?
- 21. The print-distribution **companies**
 - a. Mentioned in 10
- 22. all have their own APIs;
 - a. Required entity & feature - CRUD
 - b. What needs to be stored or known about the APIs?
 - i. E.g. url/address
- 23. Whilst they are all different, they all
 - a. Is this a rule that needs to be checked?
- 24. provide some way
 - a. Does this need to be recorded in the database?
- 25. for the **publishing company**
 - a. Mentioned in 1, ACME Publishing
 - b. Is there opportunity to make this a multi-tenant app in the future?
- 26. to send an **individual request**

- a. Requirement
 - i. Single requests
 - ii. No batches
 - iii. Action to be done by ACME
- 27. for a particular **publication**
 - a. Mentioned in 1
 - b. Does the publication entity have the responsibility to send the request or the publishing company
 - c. Assume request must contain publication id
- 28. to be printed and sent
 - a. mentioned in 12 & 13
 - b. Assume this is a single request
 - i. i.e. 'print AND send'
 - ii. NOT
 - 1. 'print' then
 - 2. send
- 29. to a particular **customer**.
 - a. mentioned in 5
 - b. to be included in 'request'
- 30. In addition to the database creation.
 - a. Required deliverable Artefact
- 31. the **company** also requires a
 - a. mentioned in 1
 - b. Acme
- 32. piece of software
 - a. Required deliverable Artefact
 - b. No mention of
- 33. to run
 - a. Service on software
- 34. every **month**
 - a. Do we need a scheduled job
 - b. A reminder for the company to run the service
- 35. that will send **requests**
 - a. Mentioned in 26
- 36. to the appropriate **print-distribution companies**
 - a. Mentioned in 11
 - b. Rules mentioned in 16
- 37. for each of the active **subscriptions**
 - a. attribute on subscription
- 38. stored in the database.
 - a. Mentioned in 4
 - b. Implementation:
 - i. Can this be a view on the database?
 - ii. Does it need to be coded as logic?
- 39. Additional **print-distributors**
 - a. Action or service on software
- 40. may be implemented in future;
 - a. Point 39 (above) NOT specifically required

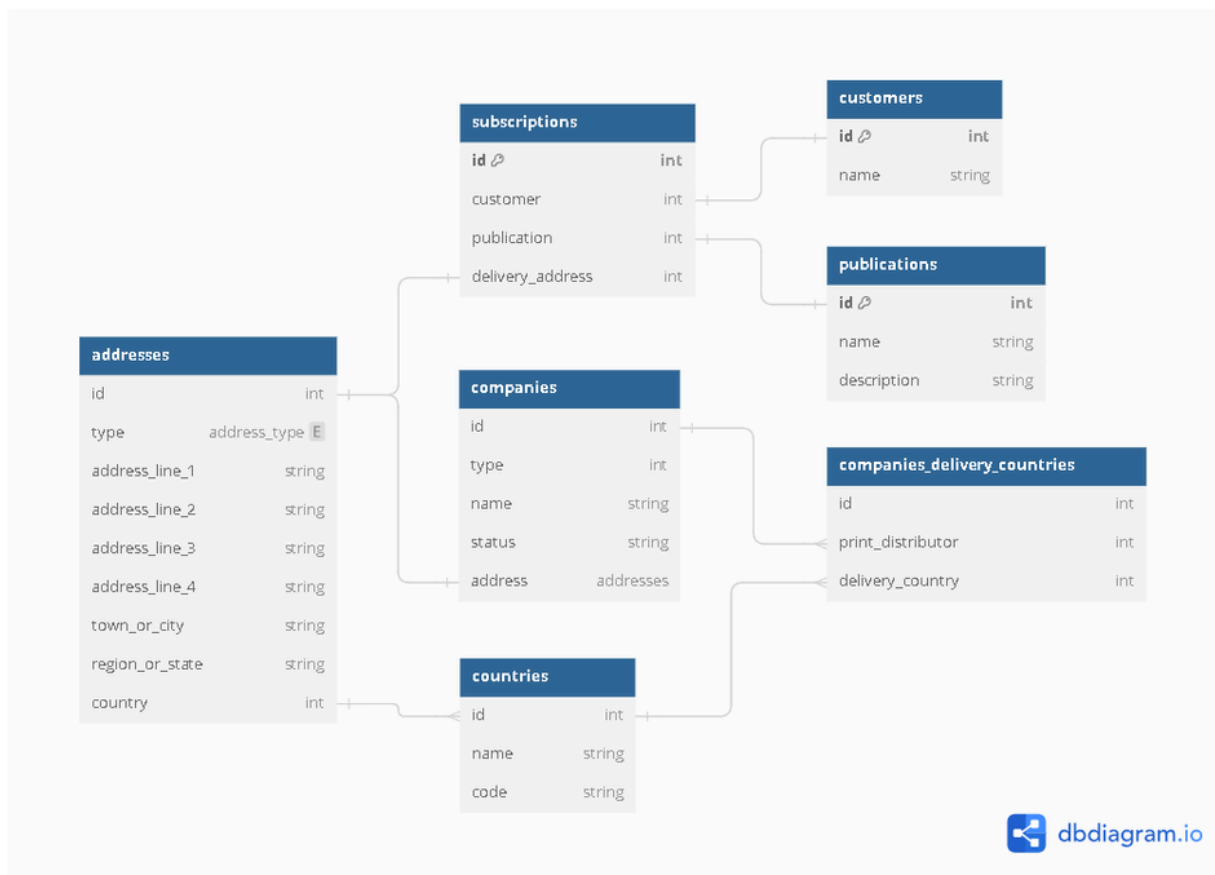
- b. Requirement for extensibility
 - i. what extensibility is required to enable this in the future?
- 41. **An application** for
 - a. Required deliverable Artefact?
 - b. What constitutes 'an application'?
 - i. Windows or Web app?
- 42. managing
 - a. Required component or flow label
 - b. What actions or behaviour can be considered 'managing' - CRUD? Printing, email, else?
- 43. **customers** and
 - a. Mentioned in 5
- 44. **subscriptions**
 - a. Mentioned in 6
- 45. as well as for updating **distributors' publications**
 - a. Activity or service
 - b. Who are distributors in this context?
 - i. Are these retailers mentioned in point 2
 - c. Assume publications are those mentioned in 1
- 46. & **delivery countries**
 - a. Required entity & feature - CRUD
- 47. will be implemented in future.
 - a. Therefor NOT required as part of this delivery
 - b. 41 → 46 OUT OF SCOPE

Acme Publishing: Database Design

Entities

	Entity	Commentary List ID	Notes	Required / Status	Relationships	Attributes
1	Publication	1	Magazine is type of publication	Required	<ul style="list-style-type: none"> Has many Subscriptions 	<ul style="list-style-type: none"> Name Description
2	Retailer	2		Not Required		
3	Customer	5, 8, 29		Required	<ul style="list-style-type: none"> Has many Subscriptions 	<ul style="list-style-type: none"> Name
4	Subscription	6, 10	<ul style="list-style-type: none"> Customers are subscribers Customers can have multiple subscriptions <ul style="list-style-type: none"> Status? From and To dates? <ul style="list-style-type: none"> Monthly job to use Customer subscribes to a publication 		<ul style="list-style-type: none"> Belongs to Customer Has one Address [delivery] Has one and belongs to Publication 	<ul style="list-style-type: none"> Publication Customer Delivery Address Start Date End Date Status
5	Magazine	7, 14	Is type of publication	Duplicate of publication		
6	Address	9, 20	<ul style="list-style-type: none"> Delivery address required for customer <ul style="list-style-type: none"> required a country attribute <ul style="list-style-type: none"> req: 20 		<ul style="list-style-type: none"> Belongs to Subscription Belongs to Company Has one Country 	<ul style="list-style-type: none"> Type Owner Lines Country
7	Company	11	<ul style="list-style-type: none"> Print-distribution company is type Is retailer a company type? Need to be unique <ul style="list-style-type: none"> Assume name and address as PK How to identify if a 'publishing' company? <ul style="list-style-type: none"> View? Req: 25 Future work, NOT required 		<ul style="list-style-type: none"> Has one Address 	<ul style="list-style-type: none"> Type Name Address

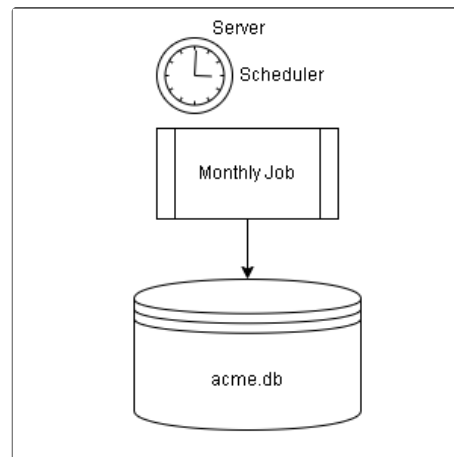
8	Country	20	<ul style="list-style-type: none"> • Delivery address needs a country • Company needs an address with a company • Referential integrity? <ul style="list-style-type: none"> ◦ What is Country is deleted? 			<ul style="list-style-type: none"> • Name • Code
9	API	22	<ul style="list-style-type: none"> • Does this needs to be stored? • Can we convert string to a symbol or build up a request from the db record attributes 			<ul style="list-style-type: none"> • TBD



Acme Publishing: Architectural Design

Components

1. Host Server
2. Database
3. Application
 - a. Scheduled Monthly job



Actors

1. Retailers
 - a. No mention of interactions from these participants
2. Customers
 - a. No mention of interactions from these participants
3. Operator - Acme user
 - a. Assume ALL features and operations are to be conducted this participant
 - b. No mention of abilities, what level of detail required for the process description document
4. System - background tasks & operations
 - a. Process description document to show instructions for Acme operator
5. Print-Distributors
 - a. No mention of interactions from these participants

Operations, Flows & Activities

	Id	Description	Actor	Component	Status	Notes
1	1.a	Store customer information	Customer, Operator	Database		Operator to enter via graphical DB Client

2	1.b	Store customer subscription	Customer, Operator	Database		Operator to enter via graphical DB Client
3	2	Distribute publications to retailers	Operator, system	Application		
4	3	Print and deliver magazine to customer subscriber	Print-distributor			Triggered
5	4.a	Determine which print-distribution company to use				
6	4.b	Determine which publication to be produced				
7	4.c	Determine delivery address country				
8	5.a	Send individual request to print-distribution company to print publication				
9	5.b	Send individual request to print-distribution company to send publication				
10	6.a	Manage print-distributor company - add	Operator, Print-distributor			
11	6.b	Manage print-distributor company - update publications	Operator, Print-distributor			
12	6.c	Manage print-distributor company - update delivery companies	Operator, Print-distributor			
13						
14						

Architectural Decision Records

Philosophy, Constraints & Assumptions

1. Provide the quickest solution
 - a. Open source or off the shelf front end to the selected database
 - b. Scaffolding a standalone or web application
2. Limit scope to only what is required
 - a. No UI mock ups
 - b. No api mocks
 - c. No external communications, email, reports
 - d. No environment monitoring

	Id	Description	Component	Options	Decision
--	-----------	--------------------	------------------	----------------	-----------------

1		Which language framework	Application - scheduled monthly job	<ul style="list-style-type: none"> • .Net • Ruby On Rails • Spring • Next.js 	.Net
2		Where to host	Environment	<ul style="list-style-type: none"> • Local install • Azure • AWS • Others 	
3		What database		<ul style="list-style-type: none"> • SQL Server • SQL Lite • PostgreSQL 	
4		<p>Screens and functions will be open to all users.</p> <p>No authentication required, assume behind firewall or whitelisting</p>	Authentication & Permissions	<ul style="list-style-type: none"> • Bespoke <ul style="list-style-type: none"> ◦ In app ◦ SSO ◦ JWT ◦ OAuth • Windows 	
5					

Acme Publishing: Code

The source for this exercise is available here [GitHub - mrichardsJBOIT/EvolveAcmeMonthly](https://github.com/mrichardsJBOIT/EvolveAcmeMonthly)

Acme Publishing: Running The Monthly Process

Back Ground

This application was built on a Windows development machine using the .Net framework.

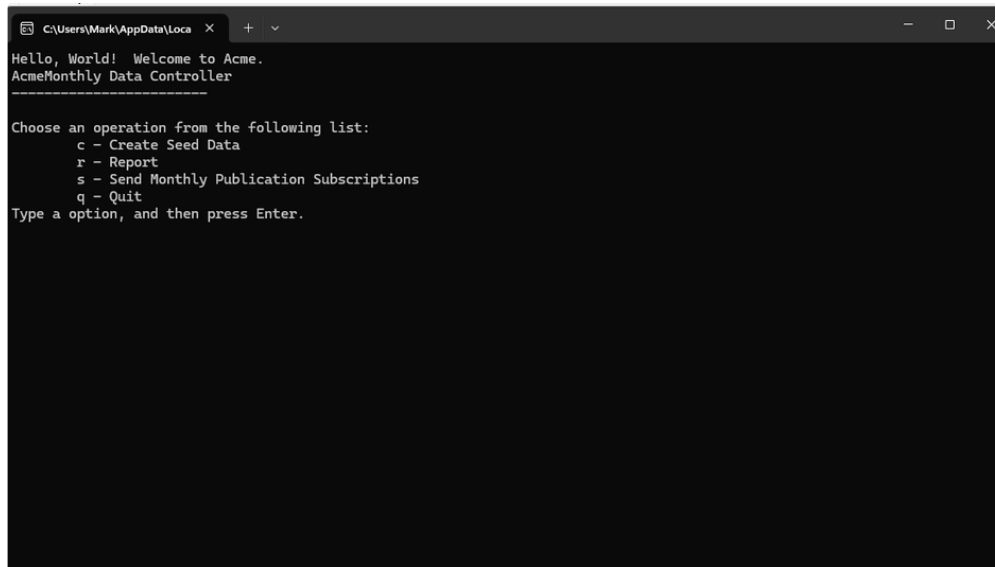
The database used was SQLite.

Instructions

Please follow the instructions shown in the linked video

<https://www.loom.com/share/1bb284df84a9497bb08d31a1b040a3c4>

1. Download and extract the .zip file
2. Install the application from the publish folder
3. The application is installed to your windows start bar and is visible in the application listing
4. Selecting the application will open a windows terminal
5. From the terminal there are 4 options to select from



```
C:\Users\Mark\AppData\Local\...  
Hello, World! Welcome to Acme.  
AcmeMonthly Data Controller  
-----  
Choose an operation from the following list:  
c - Create Seed Data  
r - Report  
s - Send Monthly Publication Subscriptions  
q - Quit  
Type a option, and then press Enter.
```

6.
 - a. c - Create Seed Data
 - i. This will populate random seed data for you to verify the structure of the tables and columns
 - b. r - Report
 - i. This will write to screen each of the tables contents

```

Hello, World! Welcome to Acme.
AcmeMonthly Data Controller

Choose an operation from the following list:
c - Create Seed Data
r - Report
s - Send Monthly Publication Subscriptions
q - Quit
Type a option, and then press Enter. r
Database Report
DBReport Doing dbOperation

-----
Database path: C:\Users\Mark\AppData\Local\acme.db.

-----
Querying for a publications
Publication: 'Acme EF Coding For Dummies', can be said: 'You'd better off using the internet'
Publication: 'How To Lead Teams', can be said: 'Practical Advice For Getting Burned'
Publication: 'The Customer Is Not Right', can be said: 'But don't tell them'
Publication: 'Acme EF Coding For Dummies', can be said: 'You'd better off using the internet'
Publication: 'How To Lead Teams', can be said: 'Practical Advice For Getting Burned'
Publication: 'The Customer Is Not Right', can be said: 'But don't tell them'
Publication: 'Acme EF Coding For Dummies', can be said: 'You'd better off using the internet'
Publication: 'How To Lead Teams', can be said: 'Practical Advice For Getting Burned'
Publication: 'The Customer Is Not Right', can be said: 'But don't tell them'
Publication: 'Acme EF Coding For Dummies', can be said: 'You'd better off using the internet'
Publication: 'How To Lead Teams', can be said: 'Practical Advice For Getting Burned'
Publication: 'The Customer Is Not Right', can be said: 'But don't tell them'

-----
Querying for a Companies
Company: 'Best Aus Media Printer', can be said: 'AUS: Does what it says on the tin, all over Australia, and NZ!'
Company: 'NZ Big Media Printer', can be said: 'NZL: All over NZ'
Company: 'Best Aus Media Printer', can be said: 'AUS: Does what it says on the tin, all over Australia, and NZ!'
Company: 'NZ Big Media Printer', can be said: 'NZL: All over NZ'
Company: 'Best Aus Media Printer', can be said: 'AUS: Does what it says on the tin, all over Australia, and NZ!'
Company: 'NZ Big Media Printer', can be said: 'NZL: All over NZ'
Company: 'Best Aus Media Printer', can be said: 'AUS: Does what it says on the tin, all over Australia, and NZ!'
Company: 'NZ Big Media Printer', can be said: 'NZL: All over NZ'

-----
Querying for a Customers
Customer: 'Dave Davies'
Customer: 'Bob Smith'
Customer: 'Rachel Jenkins'
Customer: 'Dave Davies'
Customer: 'Bob Smith'
Customer: 'Rachel Jenkins'
Customer: 'Dave Davies'
Customer: 'Bob Smith'
Customer: 'Rachel Jenkins'
Customer: 'Dave Davies'
Customer: 'Bob Smith'
Customer: 'Rachel Jenkins'

-----
Querying for a Countries
Country: 'Afghanistan', 'AFG'
Country: 'Albania', 'SLB'
Country: 'Algeria', 'DZA'
Country: 'Andorra', 'AND'
Country: 'Angola', 'AGO'
Country: 'Antigua and Barbuda', 'ATG'
Country: 'Argentina', 'ARG'
Country: 'Armenia', 'ARM'
Country: 'Austria', 'AUT'
Country: 'Australia', 'AUS'
Country: 'Austria', 'AUT'
Country: 'New Zealand', 'NZL'
Country: 'Afghanistan', 'AFG'
Country: 'Albania', 'SLB'
Country: 'Algeria', 'DZA'
Country: 'Andorra', 'AND'
Country: 'Angola', 'AGO'
Country: 'Antigua and Barbuda', 'ATG'
Country: 'Argentina', 'ARG'
Country: 'Armenia', 'ARM'
Country: 'Austria', 'AUT'
Country: 'Australia', 'AUS'
Country: 'Austria', 'AUT'
Country: 'New Zealand', 'NZL'
Country: 'Afghanistan', 'AFG'
Country: 'Albania', 'SLB'
Country: 'Algeria', 'DZA'
Country: 'Andorra', 'AND'
Country: 'Angola', 'AGO'
Country: 'Antigua and Barbuda', 'ATG'
Country: 'Argentina', 'ARG'
Country: 'Armenia', 'ARM'
Country: 'Austria', 'AUT'
Country: 'Australia', 'AUS'
Country: 'Austria', 'AUT'
Country: 'New Zealand', 'NZL'
Country: 'Afghanistan', 'AFG'
Country: 'Albania', 'SLB'
Country: 'Algeria', 'DZA'
Country: 'Andorra', 'AND'
Country: 'Angola', 'AGO'
Country: 'Antigua and Barbuda', 'ATG'
Country: 'Argentina', 'ARG'
Country: 'Armenia', 'ARM'
Country: 'Austria', 'AUT'
Country: 'Australia', 'AUS'
Country: 'Austria', 'AUT'
Country: 'New Zealand', 'NZL'

-----
Querying for a Addresses
Address: 'Test AUS', 'Company'
Address: 'Test NZL', 'Company'
Address: '666 tea Street', 'Delivery'
Address: '531 song Street', 'Delivery'
Address: '687 man Street', 'Delivery'
Address: 'Test AUS', 'Company'
Address: 'Test NZL', 'Company'
Address: '62 cardboard Street', 'Delivery'
Address: '229 twilight Street', 'Delivery'
Address: '988 teacher Street', 'Delivery'
Address: '522 circle Street', 'Delivery'
Address: '333 trip Street', 'Delivery'
Address: '785 straw Street', 'Delivery'
Address: 'Test AUS', 'Company'
Address: 'Test NZL', 'Company'
Address: '238 pine Street', 'Delivery'
Address: '727 hockey Street', 'Delivery'
Address: '380 boat Street', 'Delivery'
Address: '588 shallot Street', 'Delivery'
Address: '458 ladybug Street', 'Delivery'
Address: '988 chess Street', 'Delivery'
Address: '886 table Street', 'Delivery'
Address: '488 soap Street', 'Delivery'
Address: '253 densenet Street', 'Delivery'
Address: 'Test AUS', 'Company'
Address: 'Test NZL', 'Company'
Address: '288 tub Street', 'Delivery'
Address: '784 pencil Street', 'Delivery'
Address: '288 staircase Street', 'Delivery'
Address: '726 ear Street', 'Delivery'
Address: '233 kitten Street', 'Delivery'
Address: '388 brevity Street', 'Delivery'
Address: '788 crayon Street', 'Delivery'
Address: '22 note Street', 'Delivery'
Address: '916 alphabet Street', 'Delivery'
Address: '566 park Street', 'Delivery'
Address: '323 throne Street', 'Delivery'
Address: '482 journey Street', 'Delivery'

-----
Querying for a Subscriptions
Subscription: 'Rachel Jenkins', 'Acme EF Coding For Dummies', 'Australia'
Subscription: 'Rachel Jenkins', 'How To Lead Teams', 'New Zealand'
Subscription: 'Rachel Jenkins', 'The Customer Is Not Right', 'Australia'
Subscription: 'Bob Smith', 'Acme EF Coding For Dummies', 'Australia'
Subscription: 'Bob Smith', 'How To Lead Teams', 'Australia'
Subscription: 'Rachel Jenkins', 'The Customer Is Not Right', 'New Zealand'
Subscription: 'Rachel Jenkins', 'Acme EF Coding For Dummies', 'Australia'
Subscription: 'Bob Smith', 'How To Lead Teams', 'Australia'
Subscription: 'Bob Smith', 'The Customer Is Not Right', 'Australia'
Subscription: 'Rachel Jenkins', 'Acme EF Coding For Dummies', 'New Zealand'
Subscription: 'Dave Davies', 'How To Lead Teams', 'Australia'
Subscription: 'Rachel Jenkins', 'The Customer Is Not Right', 'Australia'
Subscription: 'Rachel Jenkins', 'Acme EF Coding For Dummies', 'New Zealand'
Subscription: 'Bob Smith', 'How To Lead Teams', 'New Zealand'
Subscription: 'Rachel Jenkins', 'The Customer Is Not Right', 'New Zealand'
Subscription: 'Bob Smith', 'Acme EF Coding For Dummies', 'New Zealand'
Subscription: 'Bob Smith', 'How To Lead Teams', 'Australia'
Subscription: 'Rachel Jenkins', 'The Customer Is Not Right', 'New Zealand'
Subscription: 'Dave Davies', 'The Customer Is Not Right', 'Australia'
Subscription: 'Bob Smith', 'Acme EF Coding For Dummies', 'Australia'
Subscription: 'Rachel Jenkins', 'How To Lead Teams', 'New Zealand'
Subscription: 'Rachel Jenkins', 'The Customer Is Not Right', 'Australia'
Subscription: 'Rachel Jenkins', 'Acme EF Coding For Dummies', 'New Zealand'
Subscription: 'Rachel Jenkins', 'How To Lead Teams', 'New Zealand'
Subscription: 'Bob Smith', 'The Customer Is Not Right', 'New Zealand'
Subscription: 'Bob Smith', 'Acme EF Coding For Dummies', 'New Zealand'
Subscription: 'Bob Smith', 'How To Lead Teams', 'Australia'
Subscription: 'Rachel Jenkins', 'The Customer Is Not Right', 'New Zealand'
Press any key to close the Acme app.

```

- ii.
- c. s - Send Monthly Publication Subscriptions
 - i. This option selects all subscriptions that are active and have an end date in the future

```
C:\ProgramData\Acme\bin\Acme.exe
Hello, World! Welcome to Acme.
AcmeMonthly Data Controller

Choose an operation from the following list:
c - Create Seed Data
r - Report
s - Send Monthly Publication Subscriptions
q - Quit
Type a option, and then press Enter. s
Sending Subscriptions
SubscriptionSender Doing doOperation

Here are Active subscriptions That could be sent the provider in the details
Publication: 'How To Lead Teams' has a subscription by 'Rachel Jenkins' for delivery to: 511 song Street, . . sigh City, 4629, New Zealand. By this distributor NZ Big Media Printer
Publication: 'How To Lead Teams' has a subscription by 'Rachel Jenkins' for delivery to: 511 song Street, . . sigh City, 4629, New Zealand. By this distributor NZ Big Media Printer
Publication: 'How To Lead Teams' has a subscription by 'Rachel Jenkins' for delivery to: 511 song Street, . . sigh City, 4629, New Zealand. By this distributor NZ Big Media Printer
Publication: 'How To Lead Teams' has a subscription by 'Rachel Jenkins' for delivery to: 511 song Street, . . sigh City, 4629, New Zealand. By this distributor NZ Big Media Printer
Publication: 'The Customer Is Not Right', has a subscription by 'Rachel Jenkins' for delivery to: 687 sman Street, . . punch City, 7082, Australia. By this distributor Best Aus Media Printer
Publication: 'The Customer Is Not Right', has a subscription by 'Rachel Jenkins' for delivery to: 687 sman Street, . . punch City, 7082, Australia. By this distributor Best Aus Media Printer
Publication: 'The Customer Is Not Right', has a subscription by 'Rachel Jenkins' for delivery to: 687 sman Street, . . punch City, 7082, Australia. By this distributor Best Aus Media Printer
Publication: 'The Customer Is Not Right', has a subscription by 'Rachel Jenkins' for delivery to: 687 sman Street, . . punch City, 7082, Australia. By this distributor Best Aus Media Printer
Publication: 'Acme EF Coding For Dummies', has a subscription by 'Bob Smith' for delivery to: 62 cardboard Street, . . mislead City, 8634, Australia. By this distributor Best Aus Media Printer
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- ii.
- d. q - Quit
- i. This ends the program.

Acme Publishing: Development Notes

1. SQL Server Express would not install locally
2. SQLite used
3. Issue generating seed data using migration
 - a. Moved to custom class
4. Code needs to be significantly refactored