

Fabrication: Advanced Scripting

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Class summary

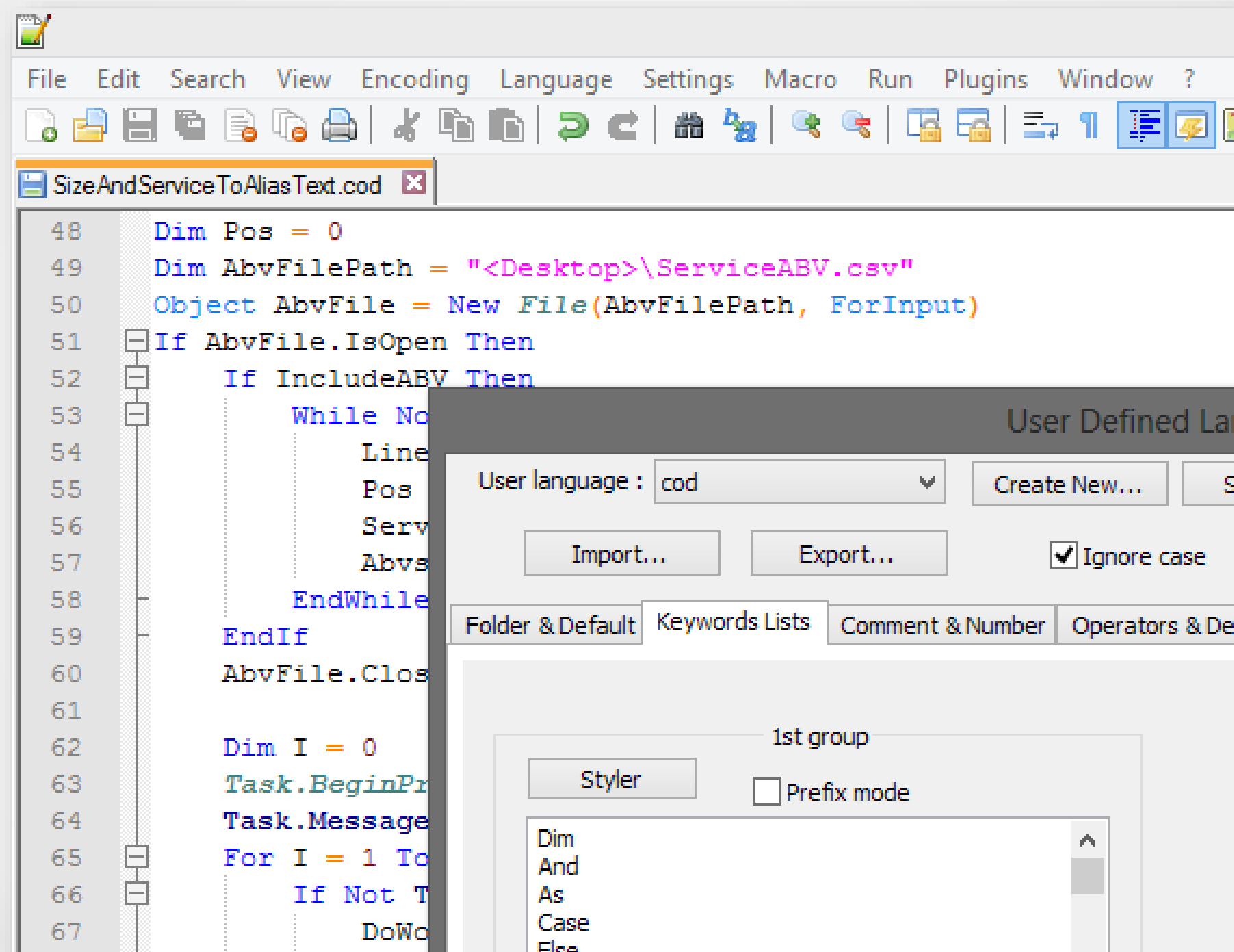
In this class we're going to get into some of the more advanced scripting techniques that you may not be aware of but will likely be useful in your workflows. We'll start by setting up Notepad++ to work with script files, then we'll dive into a script that covers a number of advanced workflows, including using lisp to create a command in AutoCAD

Key learning objectives

At the end of this class, you will be able to:

- Setup and work with Notepad++ for scripting
- Write an advanced script that makes use of multiple techniques including
 - Access exported data not directly available to scripts
 - Use undocumented features such as Task
 - Read external data into a script
 - Open and wait for a custom written html report from scripting
 - Write a command in Lisp that exports data and then executes a script

Notepad++

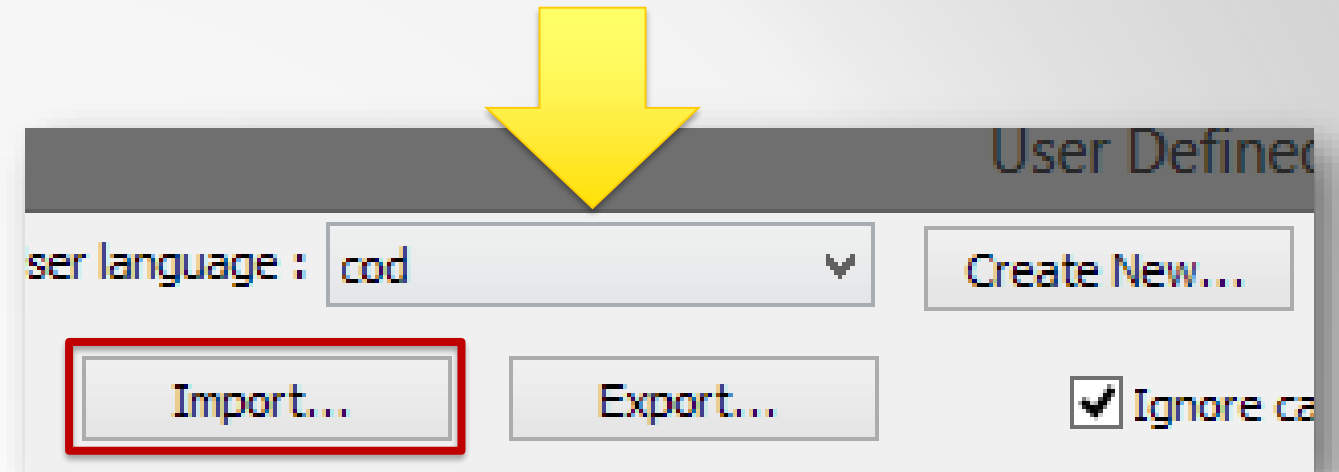
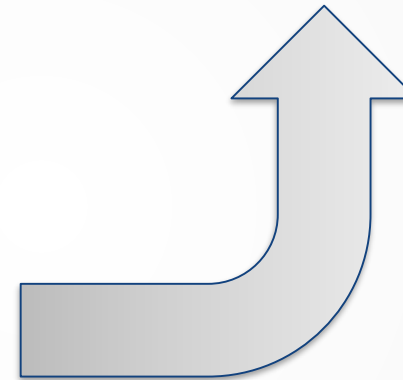
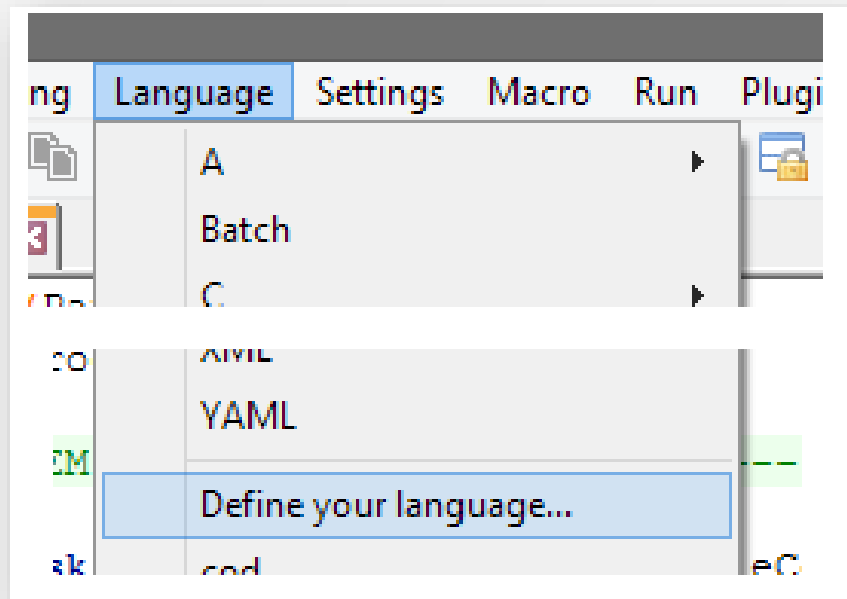
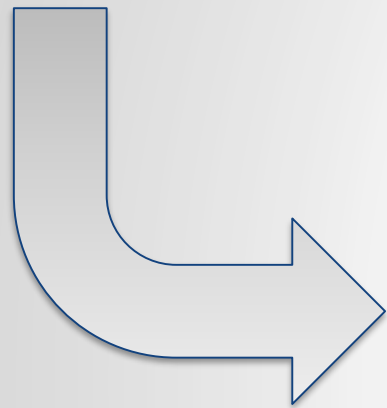


Notepad++



Open Notepad++

The icon should look like this



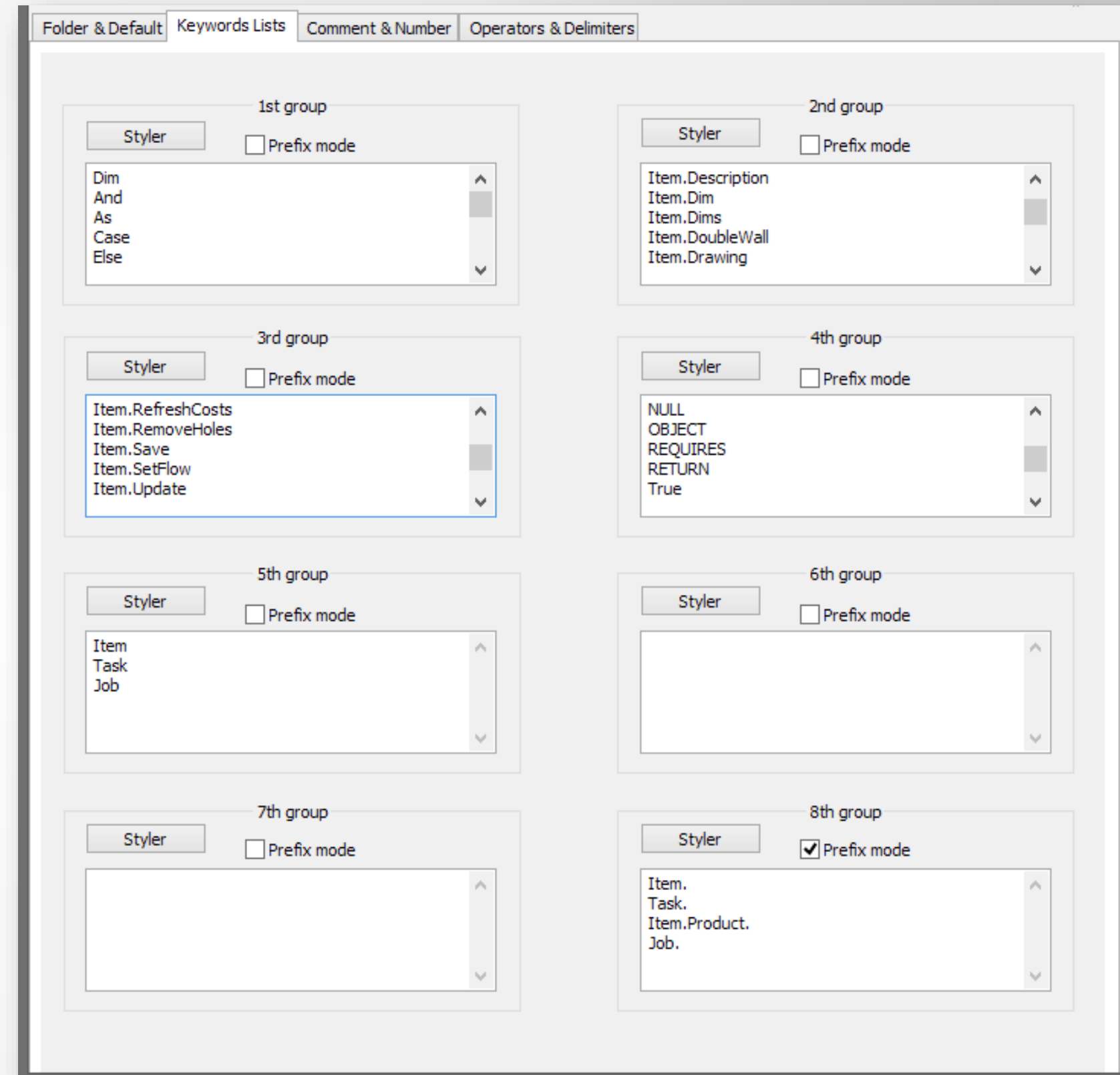
<Class Folder Directory>\MSF9703-L - Fabrication Advanced Scripting\cod.xml

When you're done, close and reopen notepad++ to ensure cod is usable

Notepad++

Keywords Lists

- 1st group is language keywords
 - Like And, If, Function, etc...
- 2nd group is properties
- 3rd group is functions
- 4th group is objects and constants
- 5th group is variables
- 8th group is error help
 - Like if you put Item.CIDD on accident, it will show up red
 - Also helps identify things that need to be added to the language definition



Exercise 1

Size and Service Abbreviation to Alias Text

Exercise 1 | Size and Service Abbreviation to Alias Text



Fabrication
CADmep...

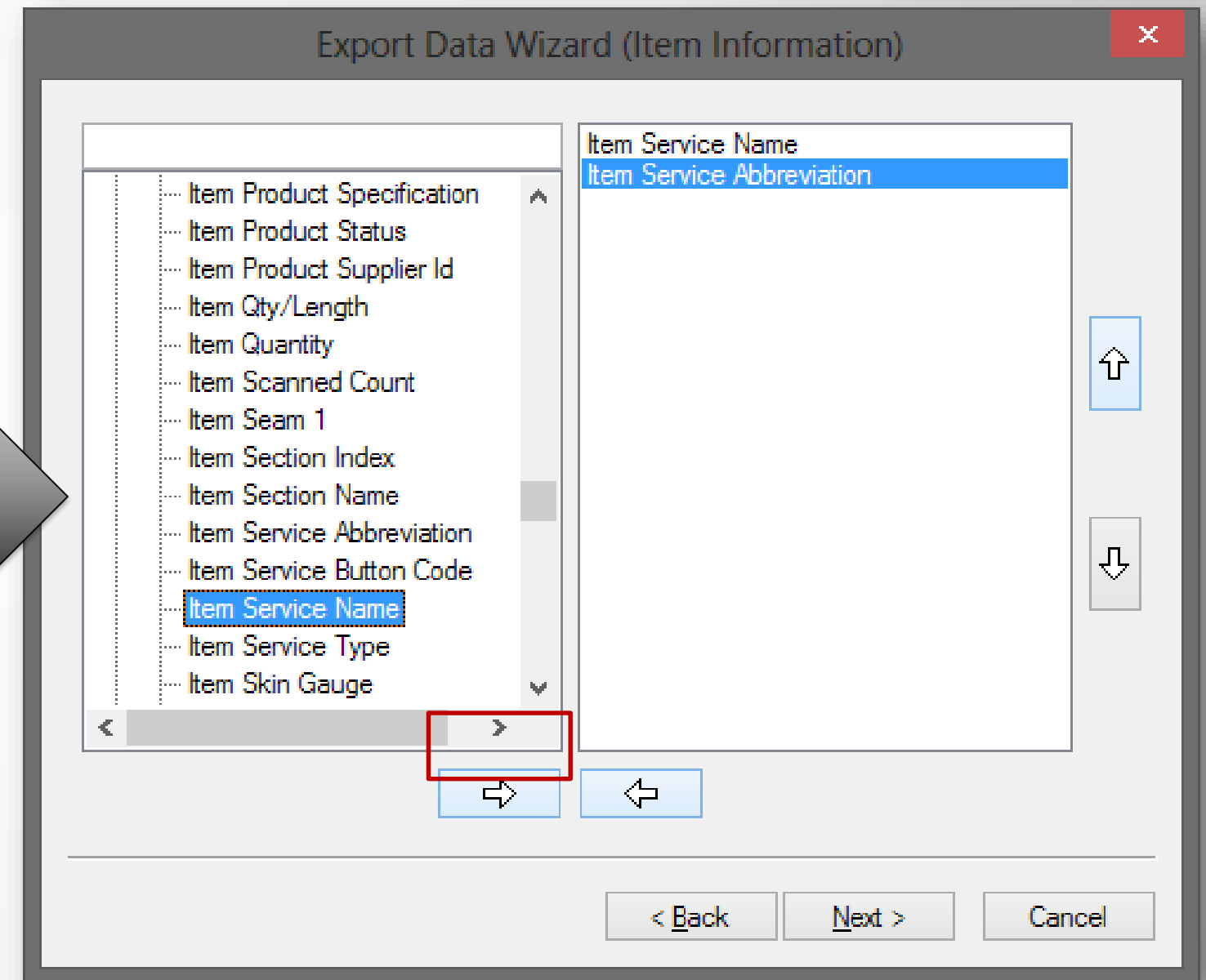
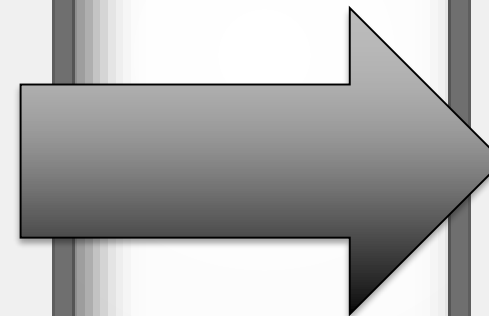
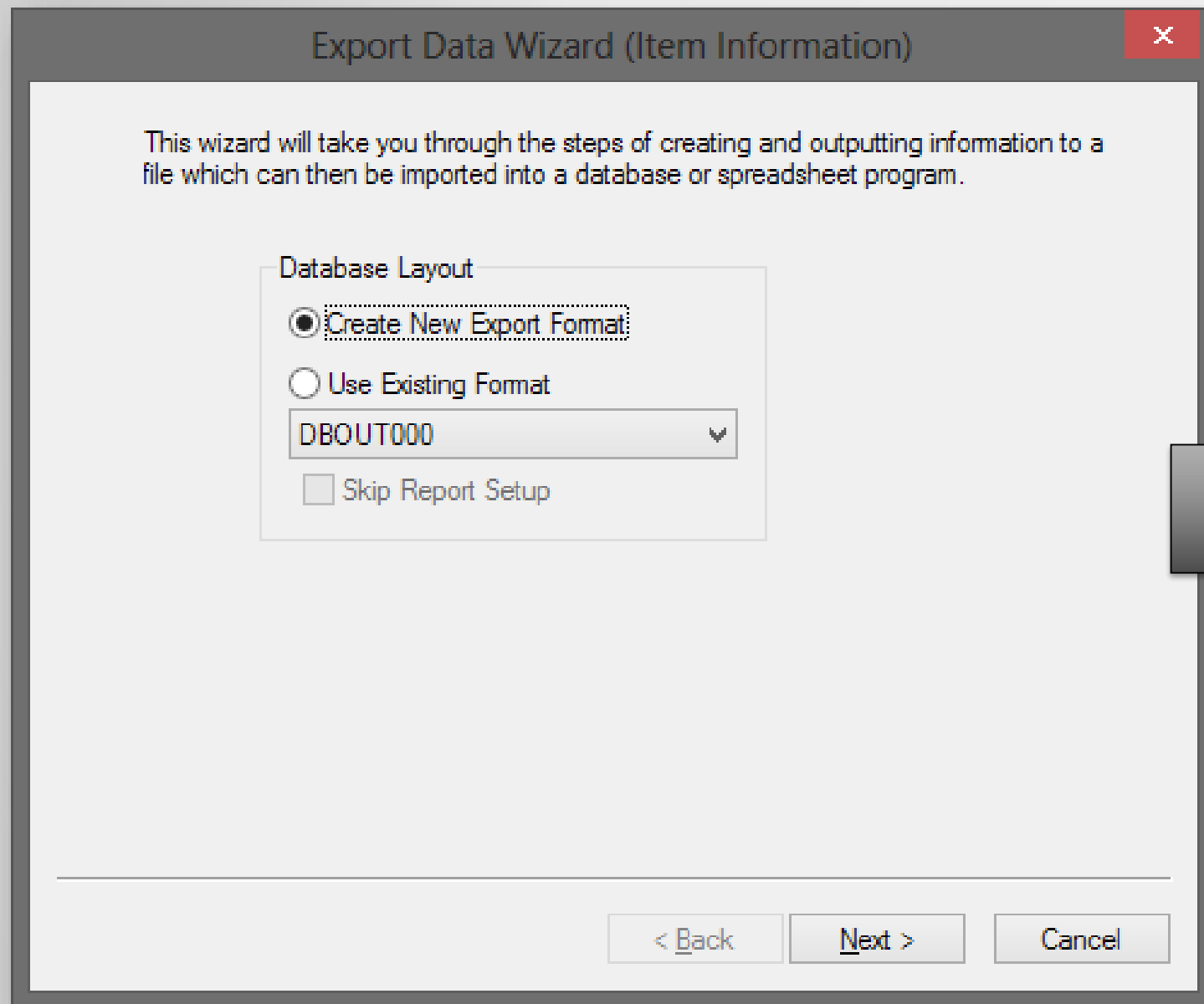
Open CADmep
The “F” icon with CME

<Class Folder Directory>\MSF9703-L - Fabrication Advanced Scripting\Exercise 01

In CADmep open the dwg file: **SizeAndServiceToAliasText_Testter.dwg**

Exercise 1 | Size and Service Abbreviation to Alias Text

CSVExport



Exercise 1 | Size and Service Abbreviation to Alias Text

Export Data Wizard (Item Information)

Please specify the criteria that the data must meet to appear in the report

Item Service Name
Item Service Abbreviation

Contents Column Order Calc Filter

Description Service

Justify Right

Show Group: Data

☐ Use Optional Stop/Start Characters

< Back Next > Cancel

Export Data Wizard (Item Information)

Please specify the criteria that the data must meet to appear in the report

Item Service Name
Item Service Abbreviation

Contents Column Order Calc Filter

Same Data:

☐ Normal

☒ Merge Rows Together

Sort Priority 1

☐ In Reverse Order

< Back Next > Cancel

Exercise 1 | Size and Service Abbreviation to Alias Text

Export Data Wizard (Item Information)

Please specify the criteria that the data must meet to appear in the report

Item Service Name
Item Service Abbreviation

Contents Column Order Calc Filter

Description

Justify

☐ Use Optional Stop/Start Characters

< Back Next > Cancel

Export Data Wizard (Item Information)

Please specify the criteria that the data must meet to appear in the report

Item Service Name
Item Service Abbreviation

Contents Column Order Calc Filter

Same Data:

☐ Normal

☒ Merge Rows Together

Sort Priority

☐ In Reverse Order

< Back Next > Cancel

Exercise 1 | Size and Service Abbreviation to Alias Text

Export Data Wizard (Item Information)

Now you have selected the information to export, please choose whether you want to save this format to use again later

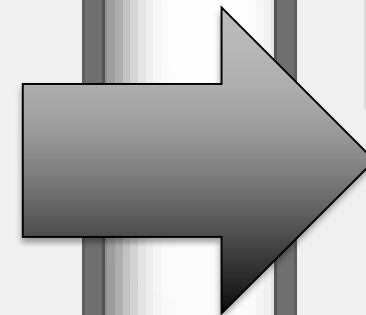
Database Output Format

☐ Do not Keep changes made to this Format

☒ Save this Format for future use As

ServiceAbv

< Back Next > Cancel



Output File Name

Desktop

Filename ServiceAbv.csv Comma Delimited Text (*.CSV)

Save Cancel

The database output file will now be written to disk. Please select a filename and format to be used.

Output Filename

☒ Specify Filename ServiceAbv.csv Browse...

☐ Use Drawing Name + Extension TXT Folder...

☐ Save the Output in a Sub Folder using the Date

Output File Format Comma Delimited Text (*.CSV)

Text Delimiter Character Comma (,)

☐ Perform Export Now

9999 ☐ Maximum Number Of Rows (---)

☒ Header Row

☐ Enclose Text Fields with Quotes

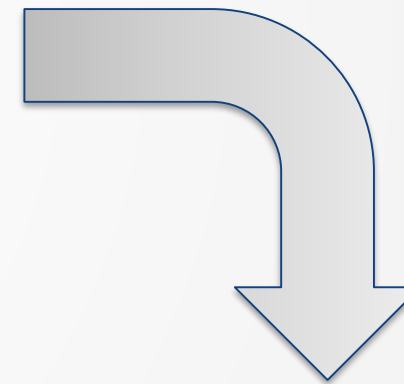
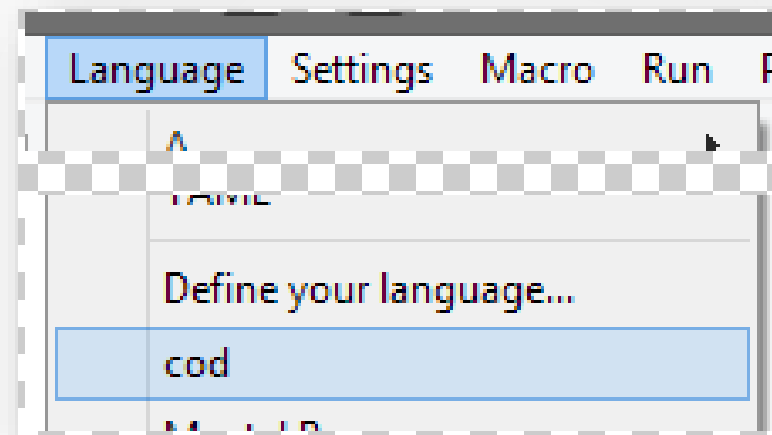
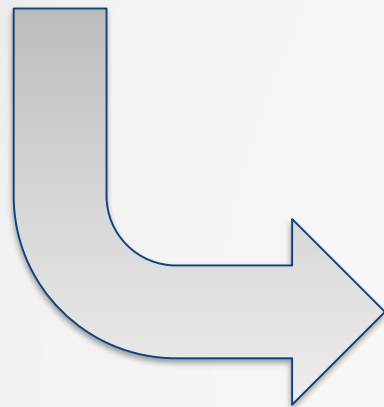
< Back Finish Cancel

Exercise 1 | Size and Service Abbreviation to Alias Text



New Document

Toolbar icon, File/New, or Ctrl+N

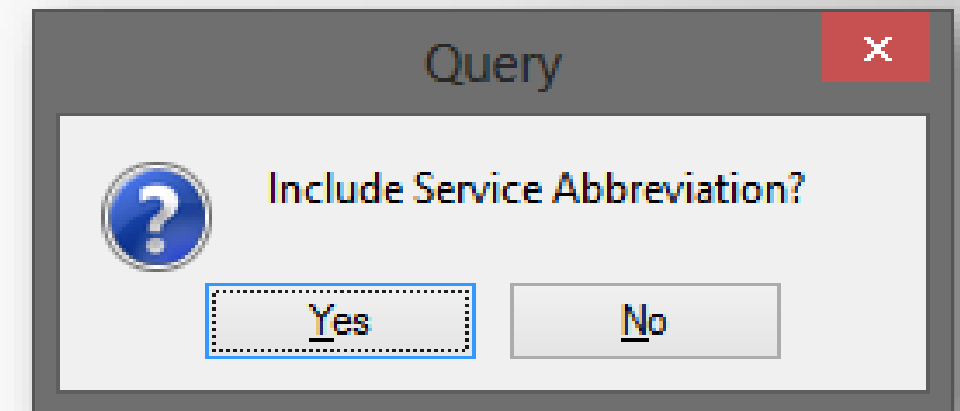


1 Requires Task.Selection

<Class Folder Directory>MSF9703-L - Fabrication Advanced Scripting\Exercise 01\Completed\
SizeAndServiceToAliasText.cod Open for reference or to Copy/Paste from

Exercise 1 | Size and Service Abbreviation to Alias Text

```
2
3 Dim CrLf = ASCII(13) + ASCII(10)
4 Dim Services = New Array(0)
5 Dim Abvs = New Array(0)
6 Dim Html = New Array(0)
7 Dim ColorBG = False
8 Dim ColorRowStyle = " style=""background-color: #CCFFFF""
9 Dim SvcI = 0
10 Dim IncludeABV = Query("Include Service Abbreviation?")
```



Variables

40.30

Exercise 1 | Size and Service Abbreviation to Alias Text

```
11
12 Function GetAbv(ServiceName)
13     Dim rVal = ""
14     If IncludeABV Then
15         For SvcI = 1 To Services.Count
16             If Services[SvcI] = ServiceName Then
17                 rVal = " " + Abvs[SvcI]
18                 SvcI = Services.Count + 1
19             EndIf
20         Next
21     EndIf
22     Return rVal
23 End Function
```

[SvcI]

1

2

Services		Abvs	
1	Hydro...	1	CWR
2	Plumb...	2	V

Function: *GetAbv*

Exercise 1 | Size and Service Abbreviation to Alias Text

```
24
25 Function AddHtml(Item)
26     Dim Style = ""
27     If ColorBG Then
28         Style = ColorRowStyle
29         ColorBG = False
30     Else
31         ColorBG = True
32     EndIf
33     Html.Add("<tr" + Style + "><td>" + Item.CID + "</td><td>" + Item.FileName +
34             "</td><td>" + Item.Service + "</td><td>" + Item.Alias + "</td></tr>")
35 End Function
```

Additional information about writing html: w3schools.com

Function: *AddHtml*

31.34

Exercise 1 | Size and Service Abbreviation to Alias Text

```
36
37 Function DoWork(Item)
38     Select Item.CID
39         Case 972
40             Item.Alias = Item.Dim["Width"].Value + "x" + Item.Dim["Depth"].Value + GetAbv(Item.Service)
41         Case Else
42             Item.Alias = Item.Description + " " + GetAbv(Item.Service)
43     End Select
44     AddHtml(Item)
45 End Function
```

Function: *DoWork*

26.87

Exercise 1 | Size and Service Abbreviation to Alias Text

Change this to the path of your actual desktop, ex.: *C:\Users\<UserName>\Desktop*

```
46
47 If IncludeABV Then
48     Dim AbvFilePath = "<Desktop>\ServiceAbv.csv"
49     Object AbvFile = New File(AbvFilePath, ForInput)
50     If AbvFile.IsOpen Then
51         Dim Line = ""
52         Dim Pos = 0
53         While Not AbvFile.EOF
54             Line = AbvFile.ReadLine()
55             Pos = InStr(1, Line, ",")
56             Services.Add(Left(Line, Pos - 1))
57             Abvs.Add(Right(Line, Len(Line) - Pos))
58         EndWhile
59         AbvFile.Close()
60     Else
61         Debug "Unable to open Abbreviation File" + CrLf + AbvFilePath
62         Html.Add("<tr style=""color: #FF0000""><td colspan=""4"">Unable to open Abbreviation File</td></tr>")
63         Html.Add("<tr style=""color: #FF0000""><td colspan=""4"">" + AbvFilePath + "</td></tr>")
64     EndIf
65 EndIf
```

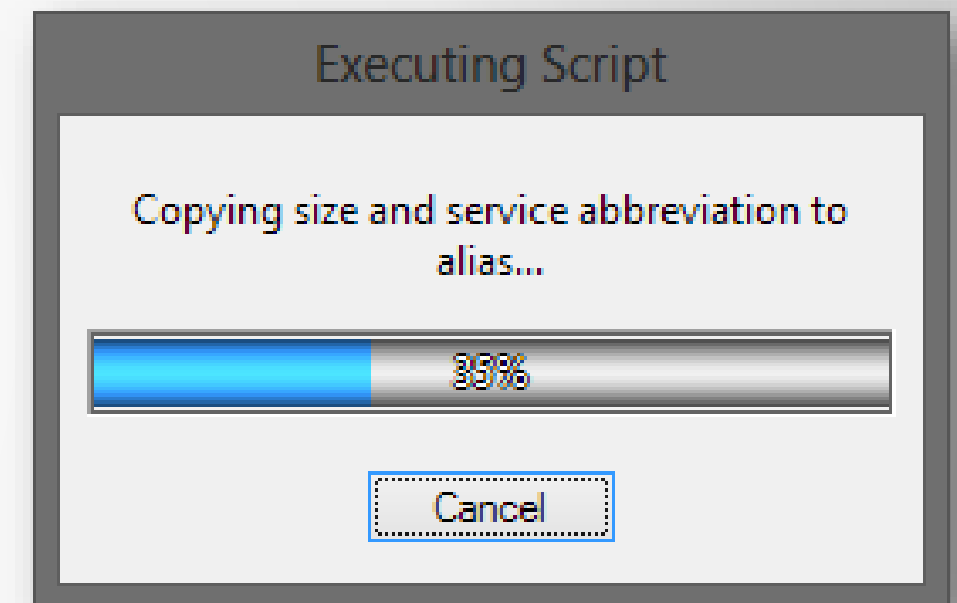
1 → Service, ServiceABV
ADSK - Hydronic: Condenser Water Return, CWR ← Len = 43
ADSK - Plumbing (DWV): Vent, V
Pos = 40

Process: Read ServiceABV.csv

22.39

Exercise 1 | Size and Service Abbreviation to Alias Text

```
66 |
67 | Dim I = 0
68 | Task.BeginProgress()
69 | Task.Message = "Copying size and service abbreviation to alias..."
70 | For I = 1 To Task.Selection.Count
71 |     If Not Task.Aborted Then
72 |         DoWork(Task.Selection[I])
73 |         Task.Progress = I / Task.Selection.Count
74 |     Else
75 |         I = Task.Selection.Count + 1
76 |         Html.Add("<tr><td colspan=""4"">Aborted</td></tr>")
77 |     EndIf
78 | Next
79 | Task.EndProgress()
```



Process: *Selection Loop*

17.91

Exercise 1 | Size and Service Abbreviation to Alias Text

```
80 Dim HtmlPath = "<Desktop>\SizeAndServiceToAliasText.html"
81 Object HtmlFile = New File(HtmlPath, ForOutput + UnicodeText)
82 If HtmlFile.IsOpen Then
83     HtmlFile.WriteLine("<!DOCTYPE html><html><head><title>Size and Service to Alias Text</title>")
84     HtmlFile.WriteLine("<style type='\"text/css\"'>tr, td, th, tthead, tbody, table {border-style: solid; } One Line
85         border-width: thin;padding: 1px 10px 1px 10px;}</style></head><body><table>")
86     HtmlFile.WriteLine("<tthead><tr><th colspan='\"4\"'>Size And Service To Alias Text Report</th></tr>")
87     If IncludeABV Then
88         For SvcI = 1 To Services.Count
89             HtmlFile.WriteLine("<tr style='\"background-color: #EEEEEE\"'><td>" + SvcI + "</td><td colspan='\"2\"'>" +
90                 Services [SvcI] + "</td><td>" + Abvs [SvcI] + "</td></tr>")
91         Next
92     EndIf
93     HtmlFile.WriteLine("<tr><th>CID</th><th>FileName</th><th>Service</th><th>Alias</th></tr></tthead><tbody>")
94     Dim HtmlI = 0
95     For HtmlI = 1 To Html.Count
96         HtmlFile.WriteLine(Html [HtmlI], False)
97     Next
98     HtmlFile.WriteLine("</tbody></table></body></html>")
99     HtmlFile.Close()
100 Task.Message = "Waiting for report to close..."
101 Dim rVal = Exec(HtmlPath, Exec_Default + Exec_Wait, "", "")
102 Debug "Size and Service to Alias Text Completed!" + CrLf + rVal
103 Else
104     Debug "Unable to open html output file" + CrLf + HtmlPath
105 EndIf
```

Output

Exercise 1 | Size and Service Abbreviation to Alias Text

Save your Script

<Desktop>\SizeAndServiceToAliasText.cod

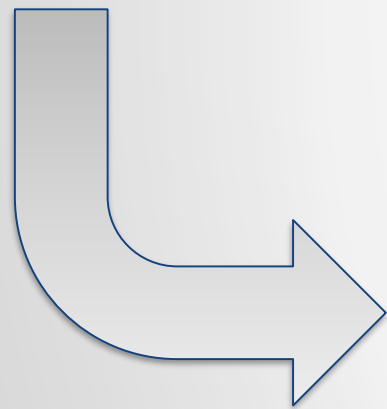
Ex.: *C:\Users\<UserName>\Desktop\SizeAndServiceToAliasText.cod*

Exercise 1 | Size and Service Abbreviation to Alias Text

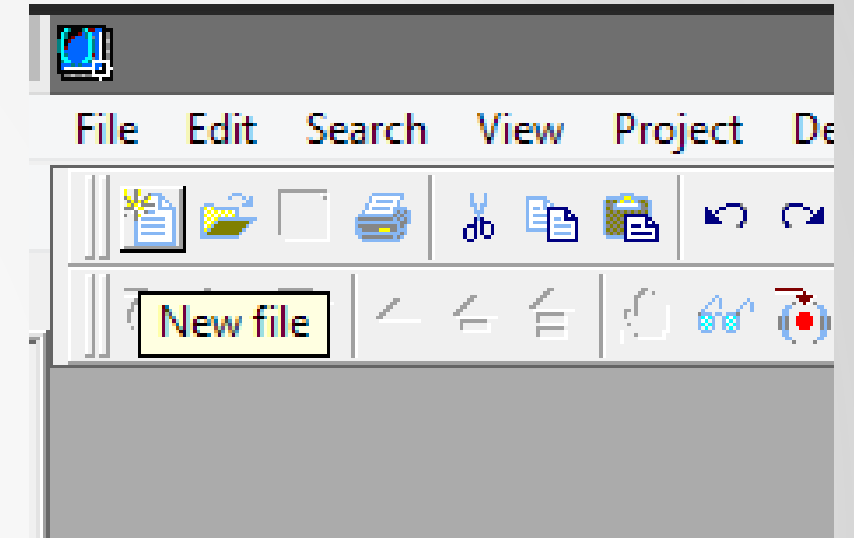
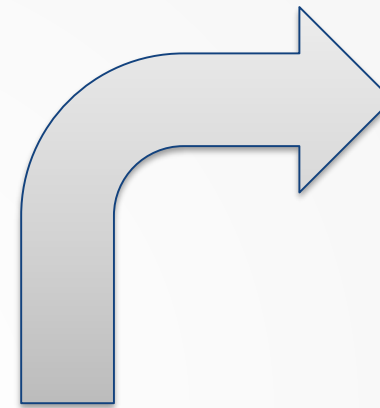
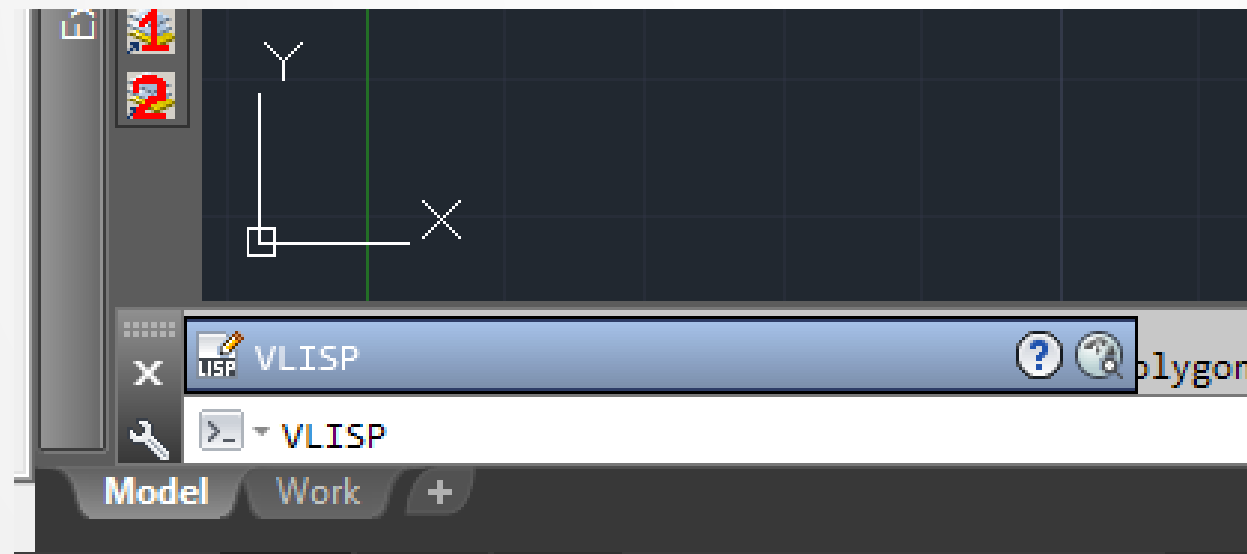


Fabrication
CADmep...

Open Fabrication CADmep
The "F" icon with CME



Open Visual Lisp IDE
Command: VLISP



Create a New File
Toolbar icon, File/New, or Ctrl+N

Exercise 1 | Size and Service Abbreviation to Alias Text

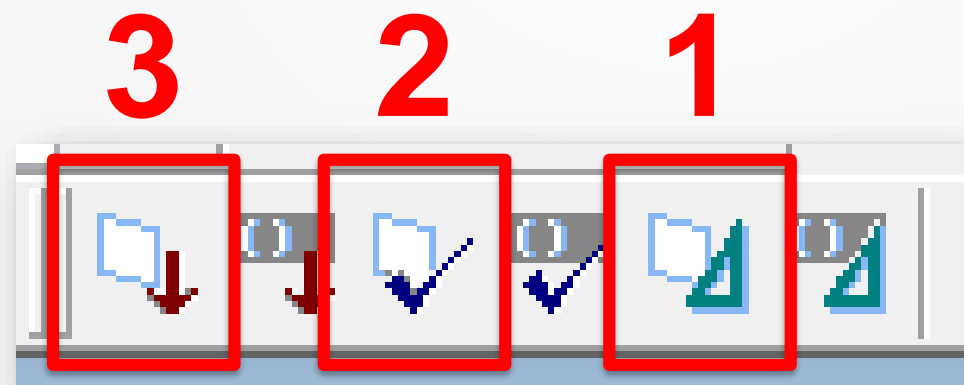
```
(Defun C:SizeAndServiceToAlias ()  
  (If (/= NIL (SetQ SS (SSGet)))  
    (Progn  
      (CSVExport "ServiceABU" SS)  
      (ExecuteScript "<Desktop>/SizeAndServiceToAliasText.cod" SS)  
      (SetText SS 8 "On")  
    )  
  )  
(Princ)  
)
```

Change

\ to /



*Backslash to Forward Slash
In Paths copied in from explorer*

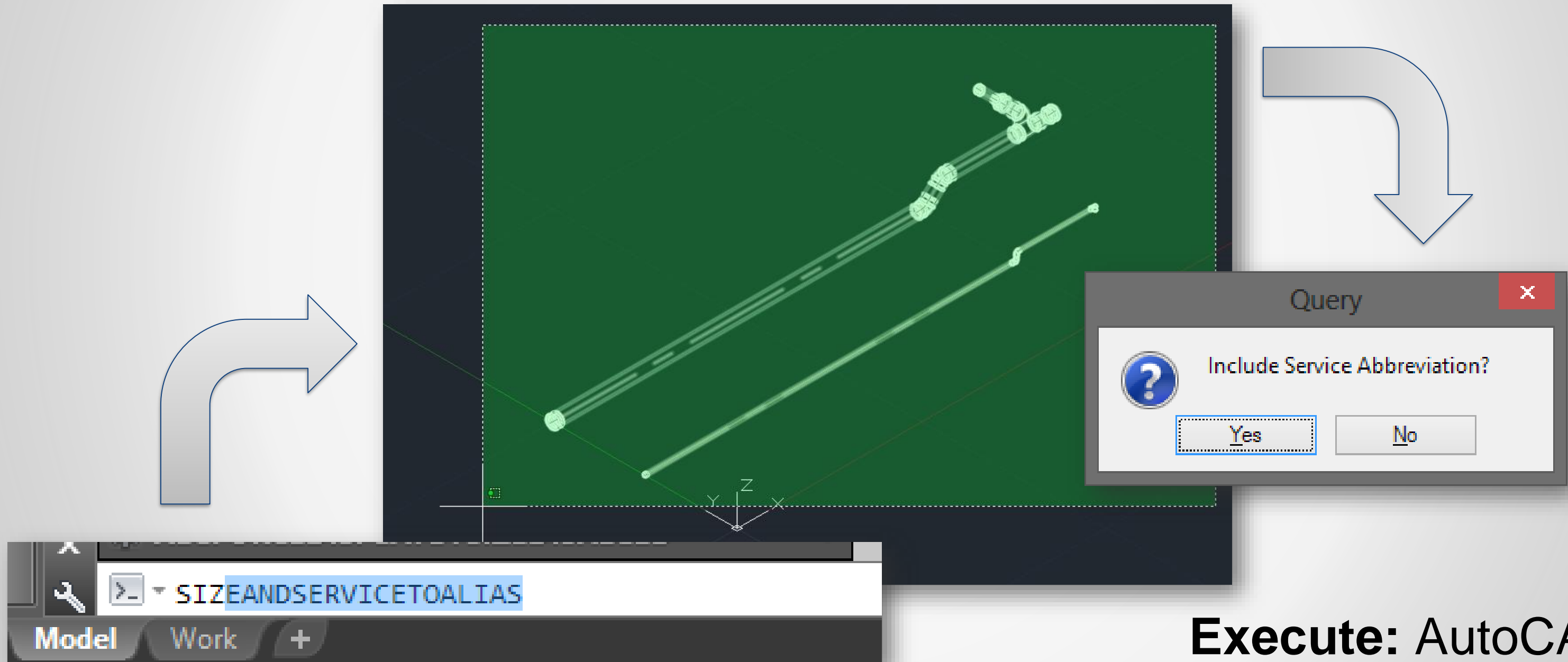


Output

7.16

Exercise 1 | Size and Service Abbreviation to Alias Text

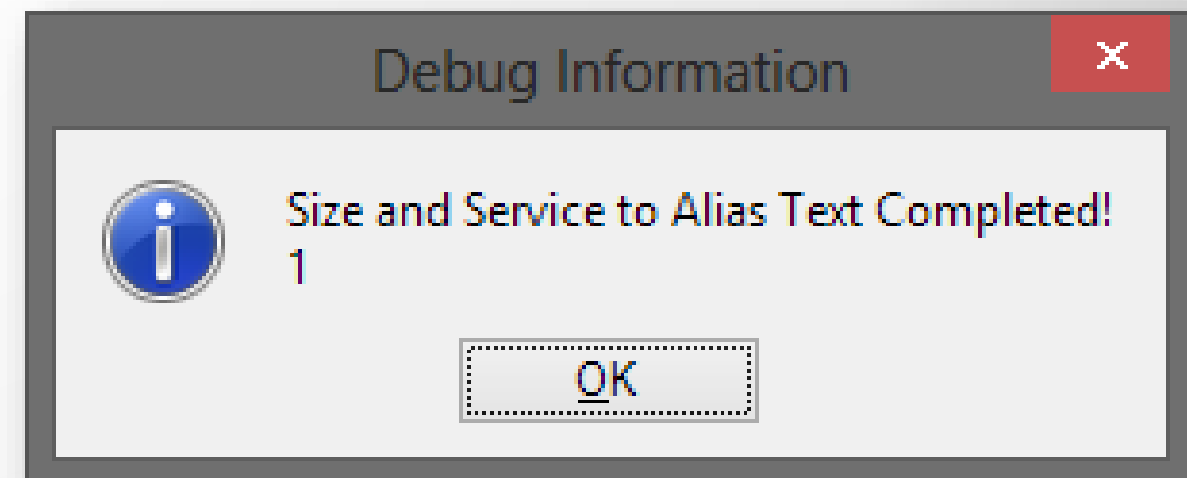
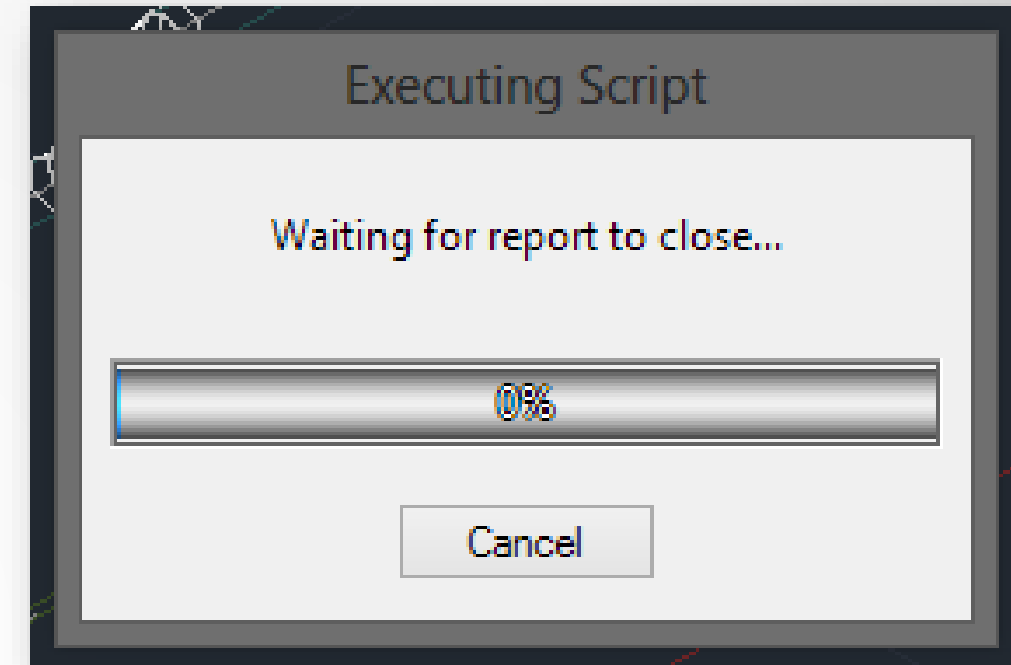
<Class Folder Directory>\MSF9703-L - Fabrication Advanced Scripting\Exercise 01\
SizeAndServiceToAliasText_Tester.dwg



Execute: AutoCAD

Exercise 1 | Size and Service Abbreviation to Alias Text

Size And Service To Alias Text Report			
1	Service		ServiceABV
2	ADSK - Hydronic: Condenser Water Return		CWR
3	ADSK - Plumbing (DWV): Vent		V
CID	FileName	Service	Alias
2060	No116 - Cap (HUB)	ADSK - Plumbing (DWV): Vent	6" V
2060	No116 - Cap (HUB)	ADSK - Plumbing (DWV): Vent	3" V
2041	DWV Pipe 20' (PL)	ADSK - Plumbing (DWV): Vent	3" V
2051	No102 - Pipe Increaser (HUB)	ADSK - Plumbing (DWV): Vent	3"x6" V
2041	DWV Pipe 20' (PL)	ADSK - Plumbing (DWV): Vent	6" V
2060	No116 - Cap (HUB)	ADSK - Plumbing (DWV): Vent	6" V
2041	DWV Pipe 20' (PL)	ADSK - Plumbing (DWV): Vent	6" V
2900	No503 - Combination Wye 45 (HUB)	ADSK - Plumbing (DWV): Vent	6" V
2041	DWV Pipe 20' (PL)	ADSK - Plumbing (DWV): Vent	6" V
2523	No321 - Ell 45 (HUB)	ADSK - Plumbing (DWV): Vent	6" V
2041	DWV Pipe 20' (PL)	ADSK - Plumbing (DWV): Vent	6" V
2523	No321 - Ell 45 (HUB)	ADSK - Plumbing (DWV): Vent	6" V
2041	DWV Pipe 20' (PL)	ADSK - Plumbing (DWV): Vent	6" V
2060	No617 - Cap (C)	ADSK - Hydronic: Condenser Water Return	1" CWR
2060	No617 - Cap (C)	ADSK - Hydronic: Condenser Water Return	1/2" CWR
2522	Pipe Pup Piece Type L PE	ADSK - Hydronic: Condenser Water Return	1/2" CWR
2060	No617 - Cap (C)	ADSK - Hydronic: Condenser Water Return	1/2" CWR
2522	Pipe Pup Piece Type L PE	ADSK - Hydronic: Condenser Water Return	1/2" CWR
2160	No611 - Tee (C)	ADSK - Hydronic: Condenser Water Return	1"x1/2"x1/2" CWR
2041	Pipe-B88-CU-L(PE)	ADSK - Hydronic: Condenser Water Return	1" CWR
2523	No607-I - Elbow 90 (C)	ADSK - Hydronic: Condenser Water Return	1" CWR
2522	No600-DS - Coupling (C)	ADSK - Hydronic: Condenser Water Return	1" CWR
2522	Pipe Pup Piece Type L PE	ADSK - Hydronic: Condenser Water Return	1 CWR
2522	No600-DS - Coupling (C)	ADSK - Hydronic: Condenser Water Return	1" CWR
2523	No607-2-2 - Fitting Elbow 90 (Ftg)	ADSK - Hydronic: Condenser Water Return	1" CWR
2041	Pipe-B88-CU-L(PE)	ADSK - Hydronic: Condenser Water Return	1" CWR



Results

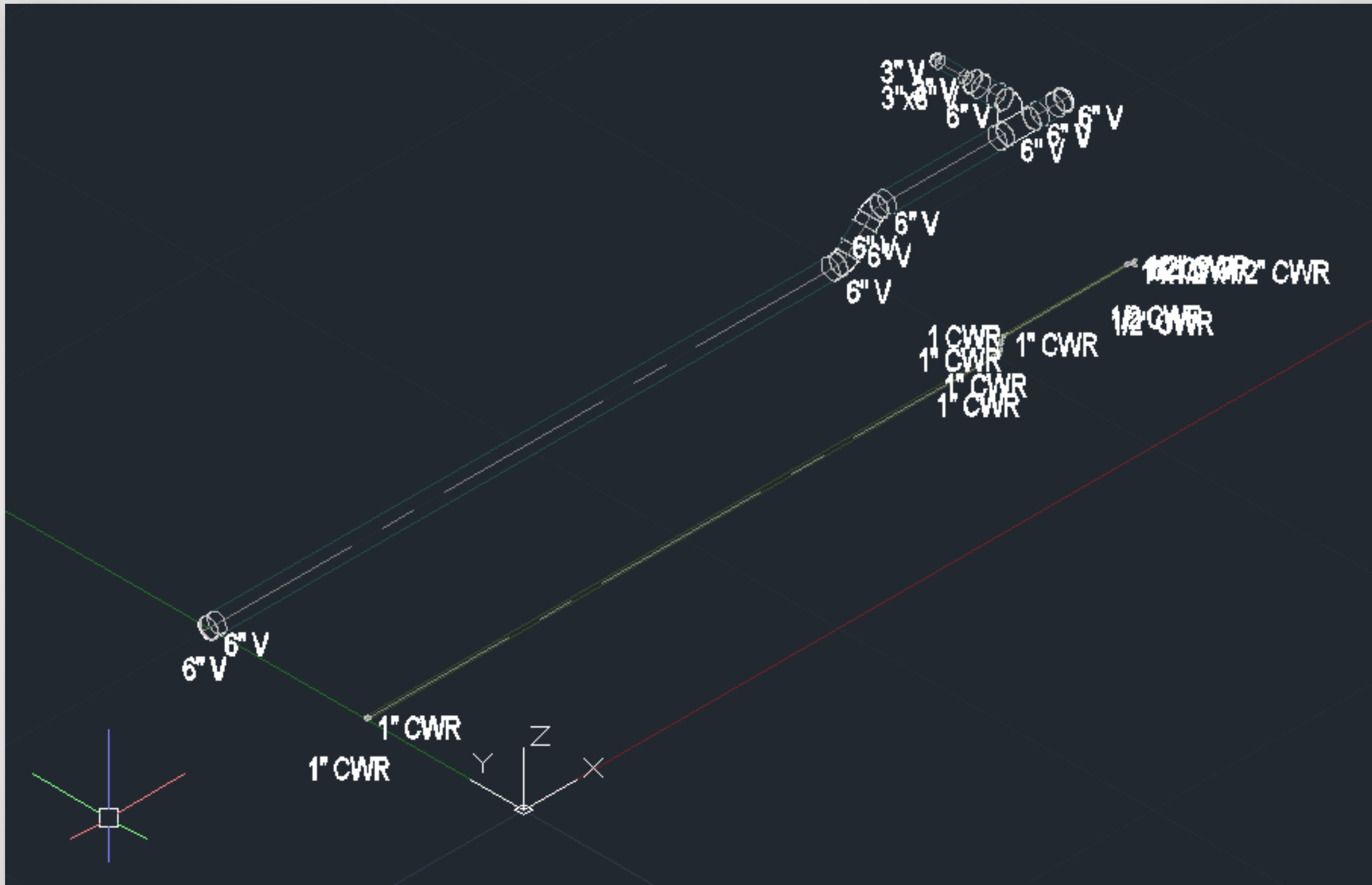
5.37

Exercise 1 | Size and Service Abbreviation to Alias Text

Debugging

- Verify all spelling, look for red code as the first step.
- Did you miss a Then on an If statement?
- Verify you changed **<Desktop>** to your actual desktop path
 - Ex.: *C:\Users\<UserName>\Desktop*
 - Every instance in your script as well as the path in your lisp file
- All parenthesis, square brackets, and quotes closed?
- If all else fails, Copy/Paste from the completed code.

Exercise 1 | Size and Service Abbreviation to Alias Text

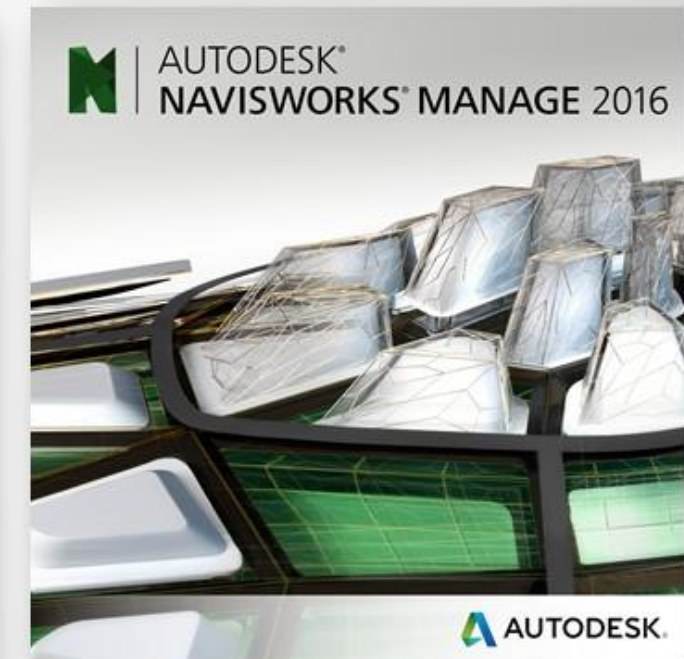
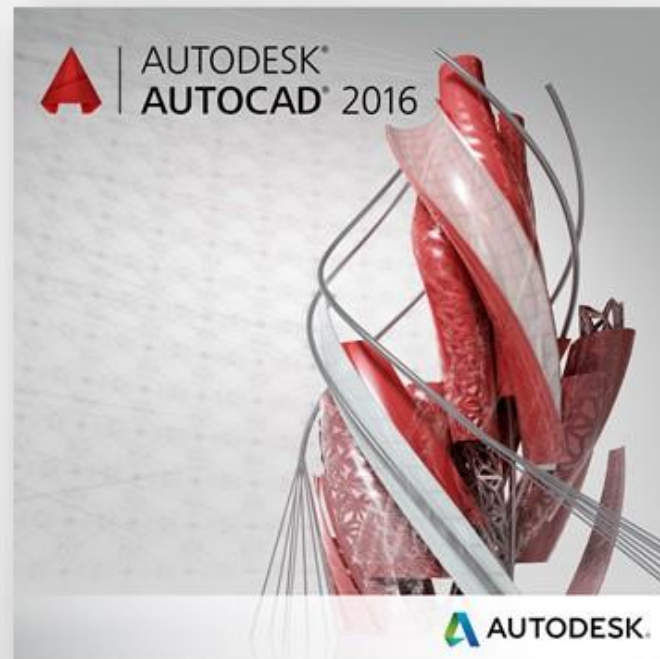
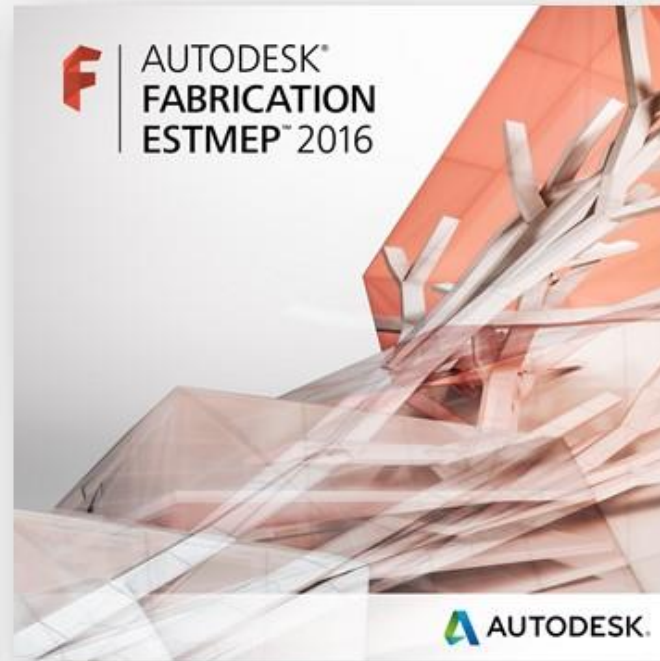
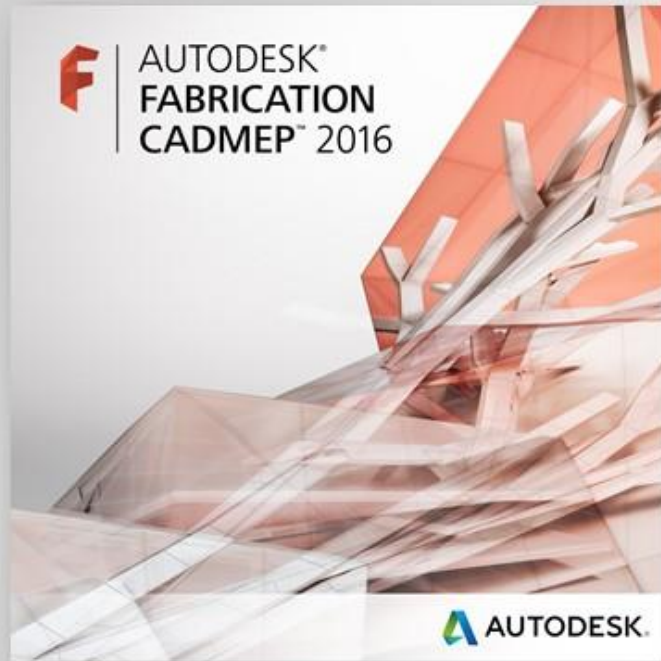


Results

0.00

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