

Tony Nahra

Cell: (319) 594-1358 . **LinkedIn:** [linkedin.com/in/TonyNahra](https://www.linkedin.com/in/TonyNahra)
Web: tonynahra.github.io . **email:** tony-nahra@uiowa.edu

SKILLS

Summary: 25 years experience developing software, managing systems, reporting, planning, evaluating and budgeting

Technologies: MS SQL, PowerBI, Fabric, Epic systems, Oracle, Azure, AWS, Web Services, Excel, Access, SharePoint

Programming: Python, Pandas, ETL, OLAP, Tableau, C#, JavaScript, PHP, SQL, VBA, APEX, XML, HTML5, Office365 Add-ins

Project Management: Agile, ITIL, PMI, Atlassian Jira, Github, Microsoft Projects

PROFESSIONAL EXPERIENCE

UI Health Care: CCA division

Jul. 2023 – Present

Coralville, Iowa, 52241, USA

Application Developer

Application development and administration of various systems:

- Epic Unified Communication, Voalte administration, Message Media, Securitas RTLS and MS Teams
- Member of two governance groups: MS-Teams and Message Media

Patient Education Institute

Jul. 2001 – June 2023

Coralville, Iowa, 52241, USA

Senior Analyst Programmer

Interactive Tutorial Engine/Player with LMS integration:

- Designed and developed a tutorial player with voice narration, questions, feedback, glossary, scoring features and multilingual capabilities to improve learning outcomes and increase user engagement
- Database Driven LMS with completion records, response analysis and usage reporting
- Worked with major healthcare institutions: NLM, Kaiser Permanente, Cleveland Clinic, HCA and others
- Managed projects across continents and in different languages
- Generated training material and plans

Abu Dhabi Investment Authority

Feb. 1994 – Jun. 2001

Abu Dhabi, U.A.E.

IT Education Consultant

Financial systems data analysis:

- Assisted financial analysts build models, data warehouse, OLAP and drill down
- Automated tasks and consolidated data from Reuters, Bloomberg and other sources
- Generated periodic reports, statistical regression, back-testing, and time-series seasonality analysis

CERTIFICATION

Epic Systems	EpicCare Inpatient Clinical Documentation	Oct 2024
Epic Systems	Data Courier Mover Badge	Nov 2024
Microsoft	Fabric Analytics Engineer Associate	Jun 2025
Oracle University	APEX cloud developer certified professional	May 2025
Oracle University	AI vector search certified professional	May 2025
Atlassian	Agile Project Management Professional	Oct 2024

EDUCATION

American University of Beirut	Beirut, Lebanon	Aug 1988
Bachelor of Engineering	Electrical Engineering	

Screenshots of sample projects that I designed and developed

A RTLS DrillDown report to show the count of RTLS tags per category.

Table

Count

Asset

Serial_Number

Manufacturer

Business Statu

Primary Catego

Category 3

Department 1

Department 2

Department 3

Department 4

Department 5

Group 1

Model

Rating

Category 1

Category 2

Manufacturer (120)

Filter values

Select AllSelect None

☒ (1182)

☒ 2141 (8)

☒ Stryker (1)

☒ 3M (5)

☒ ALCO (236)

☒ ASC - SmartNav (1)

☒ Actuated Medical (1)

☒ Alco (10)

☒ Ambu (1)

☒ Anacom-MedTek (8)

Apply

Cancel

Category 2	Totals
	3,496
Equipment	37
Feeding Pumps	169
Heat Therapy Pumps	5
Infusion Pump	5,140
Kangaroo ePump	1
Large Volume Pump	4
Medical Devices	1,142
PC Unit	1
Pacemakers	1
Patient Warmers	3
Phototherapy Lights	35
Surgical Traction Device	5
Video Laryngoscope (Main OR)	1
null	10,041
Totals	20,081

Voalte report to calculate monthly average Time_To_Read messages then use UNION to combine with other months

```
SELECT
  "04-24" AS [ "MM-YY" ],
  int( Max(
    24 * 60 * 60 * ( IowaText_Apr2024.Read - IowaText_Apr2024.Delivered )
    ) / 3600 / 24 ) AS Max_TTR_days
FROM
  IowaText_Apr2024
WHERE
  IowaText_Apr2024.Delivered > 0 AND IowaText_Apr2024.Read > 0 AND IowaText_Apr2024.[Distribution Type] = "One-to-One"
```

SELECT * from Avg_TTR_Jan_2024 Union SELECT * from Avg_TTR_Feb_2024 Union SELECT * from Avg_TTR_Mar_2024 UNION SELECT * from Avg_TTR_Apr_2024

A DrillDown RTLS report using the LastSeen field to analyze who has not been using their RTLS tag per Dept. / Building

```
28 def DateRange12Month(X):
29     if X > 180 and X < 365 :
30         return "X"
31     else:
32         return ""
33 def DateRangeInYear(X):
34     if X > 365 :
35         return "X"
36     else:
37         return ""
38
39 GRP=dataset.groupby(['Department']).agg(Cnt=('TagID',len),Last=('LastDate',np.max))
40 GRP["LastSeen"] = ( dt.datetime.now() - GRP['Last'] ).dt.days
41 GRP["Within_1_month"] = GRP['LastSeen'].apply(DateRange1Month)
42 GRP["Within_3_months"] = GRP['LastSeen'].apply(DateRange3Month)
43 GRP["Within_year"] = GRP['LastSeen'].apply(DateRange12Month)
44 GRP["more_than_year"] = GRP['LastSeen'].apply(DateRangeInYear)
45 GRP = GRP.drop( ['Last'] , axis=1)
```

Python Pandas
code used to
generate the
PIVOT below

Table	Count	↕ ↔	Last_seen_within_1_month	Last_seen_within_3_
StaffName	Department			
TagID				
Location				
LastDate				
LastSeen				

	Last_seen_within_1_month		X	
	Last_seen_within_3_months		X	
	Last_seen_within_year		X	Totals
Department	Last_seen_more_than_year	X		
		87	14	14
1JPW			1	1
2JCP				1
2JPE				3
2JPW		1	2	10
2RCP			1	1

Count numbers
are clickable to
drill into TagIDs

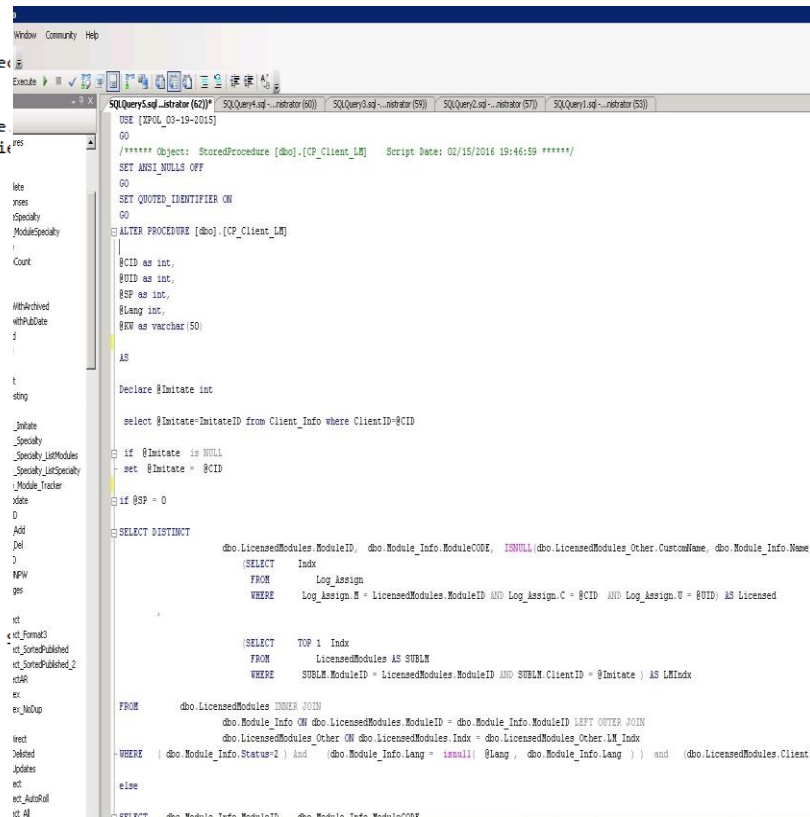
Table	Name	Unit
Count	AT	
Building		

Building	AT	--D	-M-	-MD	1-D	1MD	null	Totals
Ambulatory Clinics		57		68	449	135		709
Anesthesia		1		38	91	70		200
Capital Management				3				3
Cardiothoracic Surgery				2		1		3
Care Coordination Division				2	9	13		24
Carver College of Medicine (CCOM)				6	2	3		11
Center for Disabilities and Development		4		14	34	22		74
Central Sterilizing Services				6	149	48		203
Clinical Quality, Safety & Performance Improvement				8	2	16		26
Compassus				2				2
Compliance						2		2
Dermatology		2		5	3	5		15
Emergency Medicine		9		8	142	71		230
Engineering Services				40	5	8		53
Environmental Services		1		6	211	7		225
Family Medicine		1		39	8	45		93
Food & Nutrition Services		3		45	149	49		246
Guest Services		7			54	2		63
HCIS		21		96	53	71		241
Heart and Vascular Center (HVC)		6		31	113	44		194
Holden Comprehensive Cancer Center (HCCC)		21		61	89	98		269
Hospital Administration		3		18	7	6		34
Hospital Dentistry					1	6		7
Housewide Services		5		405	84	861		1,355
Inpatient Units		1			277	7		285
Institute for Clinical and Translational Science		1		3	7	13		24
Integrated Call Center (ICC)		18		3	28	3		52
Internal Medicine		7		129	21	83		240
Iowa Rehab Hospital				8				8
Iowa River Landing		5		12	374	97		488
Joint Office of Patient Financial Services		65		4	31	6		106
Marketing and Communication				6				6

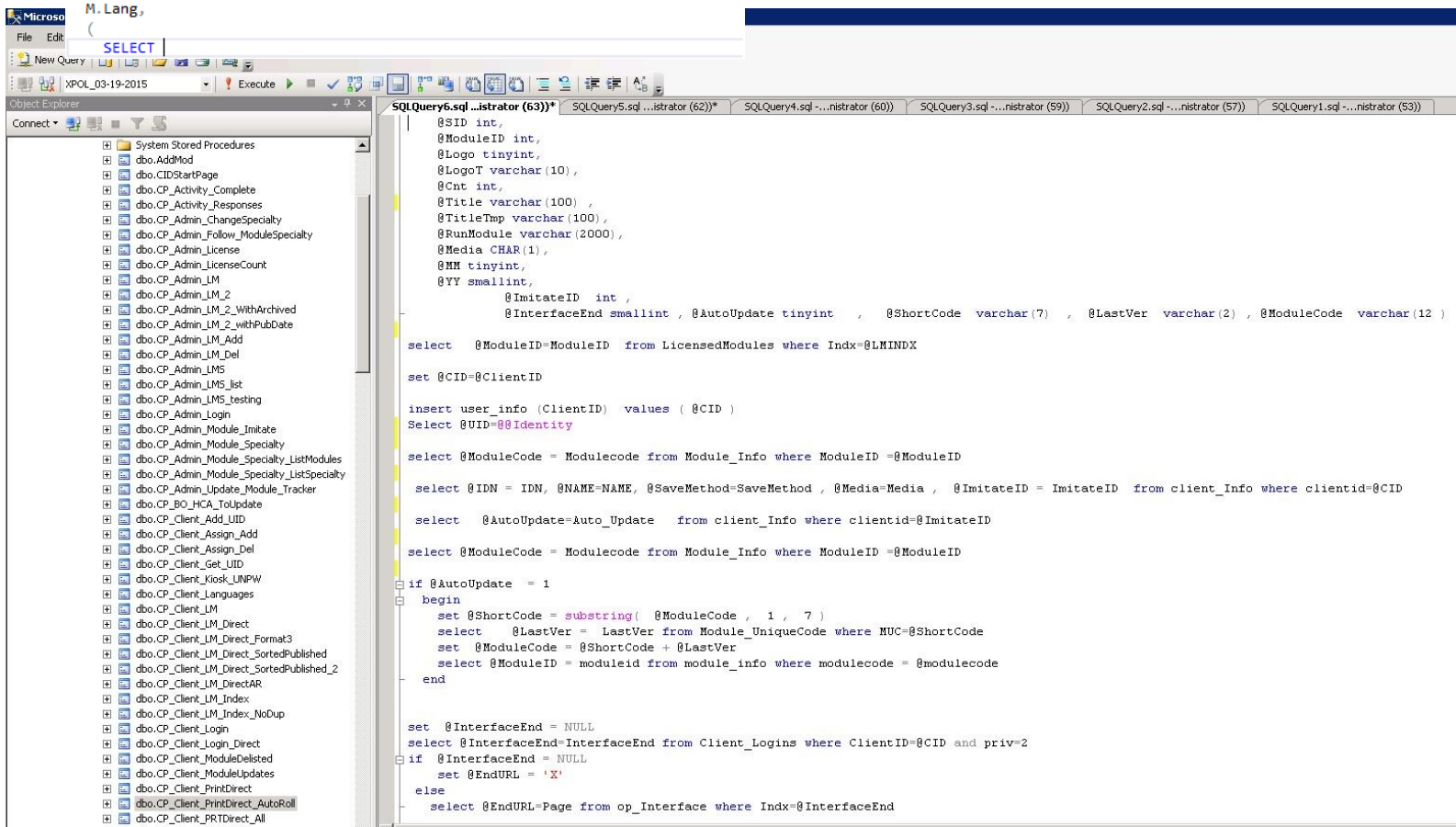
Voalte PIVOT
report for who
is using which
format:
1: VoalteOne
M: Mobile
D: Desktop

MS-SQL stored procedures that I developed for an online training system documenting completion

```
module_info.Name as Title,
module_info.Type as Type,
@CID as ClientID,
dbo.Specialties.SPname as DespSpecialty
FROM
dbo.Module_Info
INNER JOIN dbo.Module_Specialty ON dbo.Module_Info.ModuleID = dbo.Module_Spe
INNER JOIN dbo.Module_Type ON dbo.Module_Info.Type = Module_Type.Indx
INNER JOIN dbo.Specialties Spe ON dbo.Module_Info.Specialty = Spe.SP
INNER JOIN dbo.Module_Language ON dbo.Module_Info.Lang = dbo.Module_Language
INNER JOIN dbo.Specialties ON dbo.Module_Specialty.Specialty = dbo.Specialti
WHERE
(
    dbo.Module_Info.ModuleCODE = @FiltK
)
and (dbo.Module_Info.Status <> 3) else if @SpDest = -2
SELECT
    TOP 100 PERCENT M.ModuleID AS ModuleID,
    M.ModuleCODE,
    M.Lang,
    1 AS Licensed,
    Specialties_1.SPName AS Specialty,
    dbo.Module_Language.[Language],
    M.Name AS Module_Title,
    MT.M_Type AS asType,
    dbo.LicensedModules.ClientID,
    Specialties_1.SP AS DestSpecialty
FROM
    dbo.Module_Info M
INNER JOIN dbo.Module_Language ON M.Lang = dbo.Module_Language.Indx
INNER JOIN dbo.Module_Type MT ON M.Type = MT.Indx
INNER JOIN dbo.Specialties Spe ON M.Specialty = Spe.SP
INNER JOIN dbo.LicensedModules ON M.ModuleID = dbo.LicensedModules.ModuleID
INNER JOIN dbo.Specialties Specialties_1 ON dbo.LicensedModules.Specialty =
WHERE
(
    M.Type = ISNULL(@Type, M.Type)
)
AND M.Status <> 3
AND dbo.LicensedModules.ClientID = @CID
and M.Specialty = isnull(@FiltS, M.Specialty)
and M.[Lang] = isnull(@FiltL, M.[Lang])
and M.ModuleCode + M.Name + M.keywords like '%' + isnull(@FiltK, '') + '%'
ORDER BY
    M.Sorting,
    M.Name else
SELECT
    TOP 100 PERCENT M.ModuleID AS ModuleID,
    M.ModuleCODE,
    M.Lang,
```



```
USE [XPOL_03-10-2015]
GO
/***** Object: StoredProcedure [dbo].[CP_Client_LM] Script Date: 02/15/2016 19:46:59 *****/
SET ANSI_NULLS OFF
GO
SET QUOTED_IDENTIFIER ON
GO
ALTER PROCEDURE [dbo].[CP_Client_LM]
    @CID as int,
    @UID as int,
    @SP as int,
    @Lang as int,
    @BW as varchar(50)
AS
    Declare @Imitate as int
    select @Imitate=ImitateID from Client_Info where ClientID=@CID
    if @Imitate is NULL
        set @Imitate = @CID
    if @SP = 0
    SELECT DISTINCT
        dbo.LicensedModules.ModuleID, dbo.Module_Info.ModuleCODE, ISNULL(dbo.LicensedModules.Other.CustomName, dbo.Module_Info.Name)
        FROM
            Log_Assign
        WHERE
            Log_Assign.M = LicensedModules.ModuleID AND Log_Assign.C = @CID AND Log_Assign.U = @UID AS Licensed
        (SELECT TOP 1 Indx
        FROM
            LicensedModules AS SURLM
        WHERE
            SURLM.ModuleID = LicensedModules.ModuleID AND SURLM.ClientID = @Imitate ) AS LMIndx
FROM
    dbo.LicensedModules INNER JOIN
    dbo.Module_Info ON dbo.LicensedModules.ModuleID = dbo.Module_Info.ModuleID LEFT OUTER JOIN
    dbo.LicensedModules_Other ON dbo.LicensedModules.Indx = dbo.LicensedModules_Other.LM_Indx
WHERE (dbo.Module_Info.Status=1) and (dbo.Module_Info.Lang = isnull(@Lang, dbo.Module_Info.Lang)) and (dbo.LicensedModules.Client
else
```



```
Microsoft
File Edit
New Query
XPOL_03-10-2015
Execute
Object Explorer
Connect
System Stored Procedures
dbo.AddMod
dbo.CIDStartPage
dbo.CP_Activity_Complete
dbo.CP_Activity_Responses
dbo.CP_Admin_ChangeSpecialty
dbo.CP_Admin_Follow_ModuleSpecialty
dbo.CP_Admin_License
dbo.CP_Admin_LicenseCount
dbo.CP_Admin_LM
dbo.CP_Admin_LM_2
dbo.CP_Admin_LM_2_WithArchived
dbo.CP_Admin_LM_2_WithPubDate
dbo.CP_Admin_LM_Add
dbo.CP_Admin_LM_Del
dbo.CP_Admin_LMS
dbo.CP_Admin_LMS_List
dbo.CP_Admin_LMS_Testing
dbo.CP_Admin_Login
dbo.CP_Admin_Module_Imitate
dbo.CP_Admin_Module_Specialty
dbo.CP_Admin_Module_Specialty_ListModules
dbo.CP_Admin_Module_Specialty_ListSpecialty
dbo.CP_Admin_Update_Module_Tracker
dbo.CP_BO_HCA_ToUpdate
dbo.CP_Client_Add_UID
dbo.CP_Client_Assign_Add
dbo.CP_Client_Assign_Del
dbo.CP_Client_Get_UID
dbo.CP_Client_Kiosk_UNPW
dbo.CP_Client_Languages
dbo.CP_Client_LM
dbo.CP_Client_LM_Direct
dbo.CP_Client_LM_Direct_Format3
dbo.CP_Client_LM_Direct_SortedPublished
dbo.CP_Client_LM_Direct_SortedPublished_2
dbo.CP_Client_LM_DirectAR
dbo.CP_Client_LM_Index
dbo.CP_Client_LM_Index_NoDup
dbo.CP_Client_Login
dbo.CP_Client_Login_Direct
dbo.CP_Client_ModuleDelisted
dbo.CP_Client_ModuleUpdates
dbo.CP_Client_PrintDirect
dbo.CP_Client_PrintDirect_AutoRoll
dbo.CP_Client_PRTDirect_All
SQLQuery6.sql...istrator (63)*
SQLQuery5.sql...istrator (62)*
SQLQuery4.sql...istrator (60)
SQLQuery3.sql...istrator (59)
SQLQuery2.sql...istrator (57)
SQLQuery1.sql...istrator (53)
@SID int,
@ModuleID int,
@Logo tinyint,
@LogoT varchar(10),
@Cnt int,
@Title varchar(100),
@TitleTmp varchar(100),
@RunModule varchar(2000),
@Media CHAR(1),
@MM tinyint,
@YY smallint,
@ImitateID int,
@InterfaceEnd smallint, @AutoUpdate tinyint, @ShortCode varchar(7), @LastVer varchar(2), @ModuleCode varchar(12)
select @ModuleID=ModuleID from LicensedModules where Indx=@LMINDEX
set @CID=@ClientID
insert user_info (ClientID) values ( @CID )
Select @UID=@@Identity
select @ModuleCode = Modulecode from Module_Info where ModuleID =@ModuleID
select @IDN = IDN, @NAME=NAME, @SaveMethod=SaveMethod, @Media=Media, @ImitateID = ImitateID from client_Info where clientid=@CID
select @AutoUpdate=Auto_Update from client_Info where clientid=@ImitateID
select @ModuleCode = Modulecode from Module_Info where ModuleID =@ModuleID
if @AutoUpdate = 1
begin
    set @ShortCode = substring( @ModuleCode, 1, 7 )
    select @LastVer = LastVer from Module_UniqueCode where MUC=@ShortCode
    set @ModuleCode = @ShortCode + @LastVer
    select @ModuleID = moduleid from module_info where modulecode = @modulecode
end
set @InterfaceEnd = NULL
select @InterfaceEnd=InterfaceEnd from Client_Logins where ClientID=@CID and priv=2
if @InterfaceEnd = NULL
    set @EndURL = 'X'
else
    select @EndURL=Page from op_Interface where Indx=@InterfaceEnd
```

mySql (that does not support PIVOT function) query for cross tabulation

```
2  SELECT
3      TOP 100 PERCENT Specialties.SPName AS Specialty,
4      SUM( CASE WHEN module_info.Lang = 1 THEN 1 ELSE 0 END ) AS English,
5      SUM( CASE WHEN module_info.Lang = 2 THEN 1 ELSE 0 END ) AS Spanish,
6      SUM( CASE WHEN module_info.Lang = 3 THEN 1 ELSE 0 END ) AS Arabic,
7      SUM( CASE WHEN module_info.Lang = 4 THEN 1 ELSE 0 END ) AS Vietnamese
8  FROM
9      LicensedModules
10     INNER JOIN Module_Info ON LicensedModules.ModuleID = Module_Info.ModuleID
11     INNER JOIN Specialties ON LicensedModules.Specialty = Specialties.SP
12     INNER JOIN Module_Language ON Module_Info.Lang = Module_Language.Indx
13 WHERE LicensedModules.ClientID = 91
14 GROUP BY
15     Specialties.SPName,
16     Specialties.Type,
17     Module_Info.Status
18 HAVING
19     Specialties.Type = 1 AND Module_Info.Status = 2
20 ORDER BY
21     Specialty
```

```
2  ALTER PROCEDURE [CP_Survey_Analysis]
3  @ClientID smallint,
4  @ModID varchar(10),
5  @d1 smalldatetime,
6  @d2 smalldatetime AS
7  SELECT
8      TOP 100 PERCENT Activity_Responses.QuestionNumber,
9      Activity_Responses.UserResponse,
10     COUNT(Activity_Responses.Indx) AS cnt,
11     Module_Questions.Text AS Question,
12     Module_Answers.Text AS Reply,
13     Log_Activity.ClientID
14 FROM
15     Activity_Responses
16     INNER JOIN Log_Activity ON Activity_Responses.ActivityIndex = Log_Activity.Indx
17     INNER JOIN Module_Info ON Log_Activity.ModuleID = Module_Info.ModuleID
18     INNER JOIN Module_Questions ON Activity_Responses.QuestionNumber = Module_Questions.Qcode
19     AND Module_Info.ModuleCODE = Module_Questions.ModuleCode
20     INNER JOIN Module_Answers ON Activity_Responses.QuestionNumber = Module_Answers.Qcode
21     AND Activity_Responses.UserResponse = Module_Answers.Answer
22     AND Module_Info.ModuleCODE = Module_Answers.ModuleCode
23 WHERE
24     Activity_Responses.DT BETWEEN @d1 AND @d2
25 GROUP BY
26     Activity_Responses.QuestionNumber,
27     Activity_Responses.UserResponse,
28     Module_Info.ModuleCODE,
29     Module_Questions.Text,
30     Module_Answers.Text,
31     Log_Activity.ClientID
32 HAVING
33     Log_Activity.ClientID = @ClientID
34     AND Module_Info.ModuleCODE = @ModID
35 ORDER BY
36     Activity_Responses.QuestionNumber,
37     Activity_Responses.UserResponse
```


Database export to XML for a MedlinePlus static website project

MedlinePlus: Interactive Health Tutorials - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media

Address http://www.nlm.nih.gov/medlineplus/tutorial.html Go Links

Site navigation

MedlinePlus

Trusted Health Information for You

A service of the U.S. NATIONAL LIBRARY OF MEDICINE and the NATIONAL INSTITUTES OF HEALTH

Search MedlinePlus

About MedlinePlus | Site Map | FAQs | Contact Us

Home Health Topics Drug Information Encyclopedia Dictionary News Directories Other Resources **español**

Interactive Health Tutorials

The tutorials listed below are interactive health education resources from the [Patient Education Institute](#). Using animated graphics each tutorial explains a procedure or condition in easy-to-read language. You can also listen to the tutorial.

NOTE: These tutorials require a special Flash plug-in, version 4 or above. If you do not have Flash, you will be prompted to obtain a free download of the software before you start the tutorial.

- Diseases and Conditions**
 - [Abdominal Aortic Aneurysm](#)
 - [Acne](#)
 - [Allergies to House Dust Mites](#)
 - [Alopecia](#)
 - [Amyotrophic Lateral Sclerosis \(ALS\)](#)
 - [Angina](#)
 - [Anthrax](#)
 - [Asthma](#)
 - [Arrhythmias](#)
 - [Arthritis](#)
 - [Atrial Fibrillation](#)
 - [Back Pain](#)
 - [Brain Cancer](#)
 - [Bell's Palsy](#)
 - [Breast Cancer](#)
 - [Burns](#)
- Tests and Diagnostic Procedures**
 - [Barium Enema](#)
 - [Bone Densitometry](#)
 - [Breast Lump - Biopsy](#)
 - [Colonoscopy](#)
 - [Coloscopy](#)
 - [Coronary Angiography and Angioplasty](#)
 - [CT Scan \(CAT Scan\)](#)
 - [Cystoscopy](#)
 - [Diagnostic Laparoscopy](#)
 - [Echocardiogram](#)
 - [Echocardiography Stress Test](#)
 - [Intravenous Pyelogram \(IVP\)](#)
 - [Knee Arthroscopy](#)
 - [Mammogram](#)
 - [MRI](#)
 - [Myelogram](#)

Start Messenger Windows Explorer Internet Explorer

X-Plain Online

Account	Edit	Specialty	Modules	Offline	Promotions	Views	Tools
Path: root			Addiction Medicine	Create Pin			
			Advance Directives	Select Favorites List			
			Alternative Medicine	Select Frequently Used			
			Anesthesia	Module Updates			
			Angiography	Account Modifications			
			Audiology	Manage Offline Files			
			Cardiac Rehabilitation	Email Reviewer			
			Cardiac Surgery	Generate Offline Files			

```
1 <lesson>
2 <info>
3 <Title>Diabetes &#45; Eye Complications</Title>
4 <Author>Diabetes &#45; Eye Complications</Author>
5 <Published>08/30/2004</Published>
6 <PassScore>60</PassScore>
7 <Language>English</Language>
8 <ModuleID>db019105</ModuleID>
9 <folder>diabetes/db010105</folder>
10 <AutoAdvance></AutoAdvance>
11 <RevDate>11/29/2012</RevDate>
12 </info>
13 <s f="1_0" p="s" t="6" s="Introduction" />
14 <s f="1_1" p="o" t="9" />
15 <s f="1_2" p="o" t="9" />
16 <s f="1_3" p="o" t="9" />
17 <s f="2_1" p="s" t="2" s="How the Eye Works" />
18 <s f="2_2" p="o" t="6" />
19 <s f="2_3" p="o" t="5" />
20 <s f="2_4" p="o" t="7" />
21 <s f="2_5" p="o" t="5" />
```

Diabetes - Confeio de carbohidratos

Introducción

¿Cuáles de los siguientes grupos de el mayor impacto en el nivel de azúcar?

1 Carbohidratos.

2 Grasas y aceites.

3 Proteínas.

Incorrecto. Los carbohidratos afectan más los niveles de azúcar en sangre en comparación con las grasas y los aceites.

Slide 9 of 120

Salir Créditos

Volumen Repetir

accionado por la X-Plain

Copyright © 1995-2012

Omusujja gw'ensiri

Omusujja gw'ensiri: kye ki?

Obubonero n'obuganga

Okuzibya

Mubufunze

Fuluma

English

Omukko 1 ogwa 28

EDOBOZI

TANDIKA

MessageMedia OPT_OUT report generator

Instructions

Generate a Message Media csv export
Drop the csv file in csv subfolder
Run the Python script below
The generated CSV file will be stored in 'Message Media/Reports' folder

Subject : Messagemedia OPT_OUT for 2025-01-12_to_2025-01-20

Hello

Here is the messagemedia OPT_OUT report.

```
In [1]: import pandas as pd
import os
import glob
import datetime as dt
import re

SRC_FILE = sorted( filter( os.path.isfile, glob.glob('csv/*.csv')))[0]
print(SRC_FILE)
rep = pd.read_csv( SRC_FILE , chunksize=10000,
                  low_memory=False ,
                  index_col=False ,
                  header=0 ,
                  usecols=[
                      'source_address',
                      'destination_address',
                      'action',
                      'timestamp_localtime',
                      'content',
                      'timestamp',
                      'account_name'
                  ] ,
                  dtype="string"
                )

df = pd.concat(
    (x.query("action in ['OPT_OUT','OPT_IN'] ") for x in rep),
    ignore_index=True
)
FN = df['timestamp'].str[0:10].str.strip().min() + '_'
FN += df['timestamp'].str[0:10].str.strip().max()

RepPath = "file:///S:/Comm%20&%20Coll%20Apps%20(CCA)/Message%20Media/Reports/"
RepPath += FN + ".csv"
print( RepPath )

df['source_address'] = df['source_address'].str[1:]
df = df.query(" `account_name` == 'UIHealthCare (Main)' " )

dfDupe = df[df.duplicated(subset=['source_address'], keep=False)]
dfDupe = dfDupe.sort_values(
    'timestamp',
```

```

        ascending=False).drop_duplicates(['source_address'] ,
        keep='first'
    )

dfDupe = dfDupe.reset_index(drop=True)
dfDupe = dfDupe.drop( dfDupe.query(" `action`=='OPT_OUT' ").index)

print('')
print('Duplicates')
print('OPT_IN -----')

if dfDupe.empty:
    print('No duplicates')
else:
    #print(dfDupe.to_markdown())
    dfDupe.to_csv( 'output/' + FN + ".csv" , mode='a')

df = df.sort_values(
    ['timestamp','source_address'],
    ascending=[False, True]
).drop_duplicates(['source_address'])

a_index = df.set_index('source_address').index
b_index = dfDupe.set_index('source_address').index

mask = ~a_index.isin(b_index)
df = df.loc[mask]
df = df.sort_values('timestamp', ascending=True )
df = df.reset_index(drop=True)
df = df.drop(['destination_address'], axis=1)
df = df.drop(['timestamp'], axis=1)

print('')
print('Result -----')
df.to_csv( 'output/' + FN + ".csv" , index=False )
df.to_csv(
    "S:/Comm & Coll Apps (CCA)/Message Media/Reports/" + FN + ".csv" ,
    index=False
)
#print(df.to_markdown())

csv\2025-02-10_02-08-16_detail_all.csv
file:///S:/Comm%20&%20Coll%20Apps%20(CCA)/Message%20Media/Reports/2025-02-02_2025-02-08.csv

```

Duplicates

OPT_IN -----

Result -----

In []:

