























EXCEL

ΔCCFS⁹

WOR

PRO JEC

ABOU⁻

Access Excel Function HKID Check Digit (last digit)

Posted on January 27, 2015 by Wyman W

This Excel tutorial explains the algorithm of HKID Check Digit (last digit) and provide a custom Access Excel VBA Function to verify the Check Digit. (香港身份証最後號碼)

You may also want to read:

Access Excel Generate random HKID Hong Kong ID card number

HKID Check Digit



Hong Kong ID card number has a last digit with bracket called "Check Digit". Check Digit is a number to verify if the previous number and alphabet are correct. By understanding the algorithm of calculating Check Digit, you can generate a random HKID.

There are two main purposes for understand HKID Check Digit.

First, some online services only offer to local residents, they do not want overseas residents to register their service, therefore in the membership registration page, they ask you to enter a valid HKID number. The verification system cannot check whether the HKID is real, they only check if your **Check Digit** is valid.

Second, this checking can be used to verify if the employee database maintains correct records, or check before inputting the data in the system.

Algorithm of HKID Check Digit

There are two types of HKID number:

- 1) Prefix with one alphabet, such as A123456(7)
- 2) Prefix with two alphabets, such as AB123456(7)

I will demonstrate the algorithm below using HKID A123456(x)

Step 1

Convert the prefix alphabet to a numeric value. If Prefix contains two alphabets, add 8 to the original converted value of single alphabet, regardless of the first alphabet.

For example, A should convert to 8, then AA (or BA,CA,DA, etc) should be converted to 8+8 = 16

f Login with facebook

Login with twitte

STATISTICS

Today's Visits: 5,397

Today's Visitors: 3,701

Yesterday's Visits: 10,098 Yesterday's Visitors: 5,952

CATEGORIES

Select Category

ARCHIVES

Select Month

RECENT POSTS

MS Access select the first recusing First Function

Access VBA delete Table reco DoCMD.RunSQL Method

Add sorting in Access Table fi

Access Case Sensitive Join Ta Join)

Access StrComp Function to (sensitive comparison)

Access VBA import workbook Transferspreadsheet

Access VBA run Query or run

Access VBA loop through all 1 DAO.TableDef

Access VBA delete Table usin DoCmd.DeleteObject Methoc

Access VBA import txt using [Method

MS Project shift the whole scl

MS Project delete Summary T subtasks

Access VBA loop through Tab

Microsoft Access produce Ca Cross Join

Solution to Access Error 3047

Access replace Crosstab Que

Access VBA change Query cri QueryDef.SQL Property

Quickly coarch amail in Quitle

In our example HKID A123456(x), the result is 8

Prefix Alphabet	Converted value
A	8
В	16
С	24
D	32
E	40
F	48
G	56
Н	64
I	72
J	80
К	88
L	96
М	104
N	112
0	120
P	128
Q	136
R	144
S	152
Т	160
U	168
V	176
W	184
Х	192
Υ	200
Z	208
xA	16
хВ	24
xC	32
xD	40
хE	48
xF	56
xG	64
xH	72
xl	80
xJ	88
xK	96
xL	104
xM	112

Quickly search email in Outlo

Access VBA create Query usir orFQLLOWMEport









Login with facebook



STATISTICS

Today's Visits: 5,397

Today's Visitors: 3,701

Yesterday's Visits: 10,098 Yesterday's Visitors: 5,952

CATEGORIES

Select Category

ARCHIVES

Select Month

RECENT POSTS

*

MS Access select the first rec using First Function

Access VBA delete Table reco DoCMD.RunSQL Method

Add sorting in Access Table fi

Access Case Sensitive Join Ta Join)

Access StrComp Function to (sensitive comparison)

Access VBA import workbook Transferspreadsheet

Access VBA run Query or run

Access VBA loop through all 1 DAO.TableDef

Access VBA delete Table usin DoCmd.DeleteObject Methoc

Access VBA import txt using [Method

MS Project shift the whole scl

MS Project delete Summary T subtasks

Access VBA loop through Tab

Microsoft Access produce Ca Cross Join

Solution to Access Error 3047

Access replace Crosstab Que

Access VBA change Query cri QueryDef.SQL Property

xN	120
хО	128
xP	136
xQ	144
xR	152
xS	160
хТ	168
xU	176
xV	184
xW	192
xX	200
xY	208
xZ	216

Step 2

Convert each HKID digit to a number.

Nth HKID digit	multiplier
1st	7
2nd	6
3rd	5
4th	4
5th	3
6th	2

In our example HKID A123456(x)

1 is the 1st digit, multiply 1 by 7 = 7

2 is the 2nd digit, multiply 2 by 6 = 12

3 x 5 = 15

4 x 4 = 16

5 x 3 = 15

6 x 2 = 12

Total = 77

Step 3

Calculate remainder of (Step 1 result + Step 2 result)/11

= (8+77)/11

= 8

Step 4

Check Digit = 11 – result of Step 3

= 11 - 8

Quickly search email in Outlo

Access VBA create Query usir sor**F Oald I OACCESS TE**port













Login with twitter

STATISTICS

Today's Visits: 5,397

Today's Visitors: 3,701

Yesterday's Visits: 10,098 Yesterday's Visitors: 5,952

CATEGORIES

Select Category

ARCHIVES

Select Month

RECENT POSTS

*

MS Access select the first recusing First Function

Access VBA delete Table reco DoCMD.RunSQL Method

Add sorting in Access Table fi

Access Case Sensitive Join Ta Join)

Access StrComp Function to (sensitive comparison)

Access VBA import workbook Transferspreadsheet

Access VBA run Query or run

Access VBA loop through all 1 DAO.TableDef

Access VBA delete Table usin DoCmd.DeleteObject Methoc

Access VBA import txt using [Method

MS Project shift the whole scl

MS Project delete Summary T subtasks

Access VBA loop through Tab

Microsoft Access produce Ca Cross Join

Solution to Access Error 3047

Access replace Crosstab Que

Access VBA change Query cri QueryDef.SQL Property

Outside coarch amail in Outla

= 3

Step 5

The Check Digit should contain only a single digit, otherwise further convert using the below rules.

If Check Digit = 10, convert to A

If Check Digit = 11, convert to 0

Result

Since the calculated Check Digit is a single digit, x=3 for HKID A123456(x)

Custom VBA Function - HKID Check Digit

The manual calculation of Check Digit is very complicated, therefore I created a custom Function for Excel and Access for checking if the last digit is correct.

This Function removes all brackets and capitalize all alphabets during the checking (the original value will not be modified).

After the Function calculates a Check Digit, it will compare with the Check Digit of user input.

This Function returns TRUE if last digit is correct, FALSE if incorrect.

<u>I have verified the accuracy of this custom Function with 40,000+ real HKID.</u>

VBA Code - HKID Check Digit

```
Public Function wCheckHKID(ID As String) As String
             Dim newIDArr() As Variant
             newID = UCase(Replace(Replace(ID, "(", ""), ")", ""))
             lenNewID = Len(newID)
             IDnoDigit = Left(newID, lenNewID - 1)
             lenIDnoDigit = Len(IDnoDigit)
             For i = 1 To lenIDnoDigit
                          ReDim Preserve newIDArr(i)
                          newIDArr(i) = Mid(IDnoDigit, i, 1)
             If lenIDnoDigit = 7 Then
                          checkSum = (Asc(newIDArr(1)) - 64) * 8 + newIDArr(2) * 7 + newIDArr(3) * 6 + newID
                          checkDigit = 11 - checkSum Mod 11
             ElseIf lenIDnoDigit = 8 Then
                          checkSum = 6 + (Asc(newIDArr(2)) - 64) * 8 + newIDArr(3) * 7 + newIDArr(4) * 6
                          checkDigit = 11 - checkSum Mod 11
             If checkDigit = 10 Then
                          newCheckdigit = "A"
             ElseIf checkDigit = 11 Then
                          newCheckdigit = "0"
             Else: newCheckdigit = checkDigit
             End If
             If Asc(newCheckdigit) = Asc(Right(newID, 1)) Then
                          wCheckHKID = True
             Else
                          wCheckHKID = False
             End If
End Function
```

Syntax of custom Access Excel Function - HKID Check Digit

wCheckHKID (ID)

Quickly search email in Outlo

Access VBA create Query usir sor**F OataliOAVVeSME**port













STATISTICS

Today's Visits: 5,397

Today's Visitors: 3,701

Yesterday's Visits: 10,098 Yesterday's Visitors: 5,952

CATEGORIES

Select Category

ARCHIVES

Select Month

RECENT POSTS

 $\stackrel{\mathbb{A}}{=}$

MS Access select the first recusing First Function

Access VBA delete Table reco DoCMD.RunSQL Method

Add sorting in Access Table fi

Access Case Sensitive Join Ta Join)

Access StrComp Function to (sensitive comparison)

Access VBA import workbook Transferspreadsheet

Access VBA run Query or run

Access VBA loop through all 1 DAO.TableDef

Access VBA delete Table usin DoCmd.DeleteObject Methoc

Access VBA import txt using [

MS Project shift the whole scl

MS Project delete Summary T subtasks

Access VBA loop through Tab

Microsoft Access produce Ca Cross Join

Solution to Access Error 3047

Access replace Crosstab Que

Access VBA change Query cri QueryDef.SQL Property

Quickly coarch amail in Quitle

ID

Ouickiv search email in Outlo

ccess VBA create Query usir FOLLOW ME port













STATISTICS

Today's Visits: 5,397

Today's Visitors: 3,701

Yesterday's Visits: 10,098 Yesterday's Visitors: 5,952

CATEGORIES

Select Category

ARCHIVES

Select Month

RECENT POSTS

 $\stackrel{\mathbb{A}}{=}$

MS Access select the first rec using First Function

Access VBA delete Table reco DoCMD.RunSQL Method

Add sorting in Access Table fi

Access Case Sensitive Join Ta Join)

Access StrComp Function to (sensitive comparison)

Access VBA import workbook Transferspreadsheet

Access VBA run Query or run

Access VBA loop through all 1 DAO.TableDef

Access VBA delete Table usin DoCmd.DeleteObject Methoc

Access VBA import txt using [Method

MS Project shift the whole scl

MS Project delete Summary T subtasks

Access VBA loop through Tab

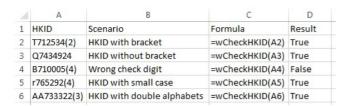
Microsoft Access produce Ca FREE OF DRIPPRESS THEME | ACCE

Solution to Access Error 3047

Access replace Crosstab Que

Access VBA change Query cri QueryDef.SQL Property

Example of Custom Function - HKID Check Digit



Outbound References

http://www.techonthenet.com/excel/formulas/asc.php

Wyman W



Manager@IBM Global Business Services

Wyman is human resources professional specialized in implementation of HR information system.

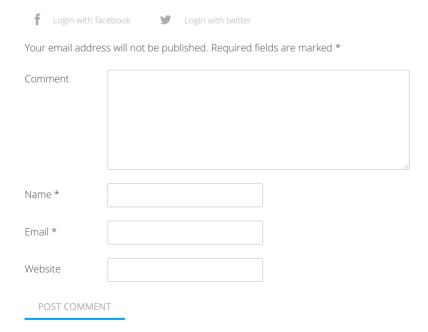
Full HKID such as Z123456(2), accept values with or without brackets, lower case or upper case

He is also a:

- Microsoft Most Valuable Professional (Excel)
- Microsoft Community Contributor
- Microsoft Office Specialist in Access / Excel
- Microsoft Specialist in MS Project
- Microsoft Technical Associate
- Microsoft Certified Professional
- IBM SPSS Specialist

Leave a Reply

Social connect:



COPYRIGHT © 2019 ACCESS-EXCEL.TIPS