Using Excel via COM

Organizing an Academy

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Aims

Aims of the interfaces

1. Get Data from an Excel file (work book),
2. Write Data to an Excel file (work book),
3. Set properties of cells and (work) sheets.

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2. Write Data to an Excel file (work book),
3. Set properties of cells and (work) sheets.

Reading an Excel sheet

```
r←s XLSles dn
```

1 s[1] 0: read data
      1: connect to Excel, file and sheet, read
      2: read, disconnect sheet, file and Excel
      3: 1 and 2   [Def.: 3]
   [2] 1: read given sheet   [Def.: 1]
      2: read previous sheet
      3: return number of sheets
      4: return names of sheets

2 dn[1] TV   file name (work book)
   [2] TV   name of (work) sheet to be read
             empty: active (work) sheet   [DEF.: '']
       S   number of (work) sheet to be read
   [3] V[2] left upper cell
       TV   '': read all   [DEF.: '']
   [4] V[2] size of cell array

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1 s[1] 0: read data
       1: connect to Excel, file and sheet, read
       2: read, disconnect sheet, file and Excel
       3: 1 and 2   [Def.: 3]
    [2] 1: read given sheet   [Def.: 1]
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Writing to an Excel sheet

```
r←s XLSscr dn

1  s[1] 0:    write data
       1:    connect to Excel, file, sheet, write
       2:    Write, disconnect sheet, file, Excel
       3:    1 and 2                              [Def.: 3]
   [2] 0/1: clean sheet first                     [Def.: 0]
   [3]      if sheet does not exist:              [Def.: 0]
       -1:  do not create                         [Def.: 0]
       0:   create as last sheet
       >0:  create before s[3]
            if too large: create at the end
       TV   create before s[3]
   [4] 0/1: if file does not exist, create it     [Def.: 0]
2  dn[1] TV   file name
   [2] TV   name of sheet to be written to
            empty: active sheet                   [DEF.: '']
   [3] V[2] left upper cell
   [4] AM   data matrix, defines size
```

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              empty: active sheet   [DEF.: '']
    [3] V[2] left upper cell
    [4] AM   data matrix, defines size

Closing the file, releasing file and Excel

```
r←hs XLSscl griff
```

1 hs   LS 0/1: screen output?
2 griff V[1] handle to Excel
          [2] handle to file
          [3] ≠0: handle to sheet, if connected
          S   0: use global handles

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2 griff V[1]   handle to Excel
        [2]   handle to file
        [3]   ≠0: handle to sheet, if connected
        S   0: use global handles

Global logical variable xlssav

1 Set to true by any routine which adds or changes the content of a cell.

2 XLSscl checks it and saves the content to the file:

Closing the file, releasing file and Excel

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r←hs XLSscl griff
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1 hs   LS   0/1: screen output?

2 griff   V[1]   handle to Excel
          [2]   handle to file
          [3]   ≠0: handle to sheet, if connected
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```

1 `hs      LS  0/1: screen output?`
2 `griff  V[1]  handle to Excel`
`       [2]  handle to file`
`       [3]  ≠0: handle to sheet, if connected`
`     S      0: use global handles`

Global logical variable `xlssav`

1 Set to true by any routine which adds or changes the content of a cell.

2 XLSscl checks it and saves the content to the file:

Saving and Releasing file: Save file

1 `→(~4⎕griff)/1+⎕LC◇→(0 0≠↑(r em res)←1 COM 'METHOD' griff[2]'Save')/F42`
2 `→(~0 0≡↑(r em res)←1 COM 'PROPERTY' griff[1]'Visible' 0)/F43`
3 `→(~0 0≡↑(r em res)←1 COM 'PROPERTY' griff[1]'DisplayAlerts' hs)/F43`
4 `→(~0 0≡↑(r em res)←1 COM 'METHOD' griff[2]'Close')/F44`
5 `COM 'RELEASE' griff[2]`
6 `COM 'RELEASE' griff[1]`

Closing the file, releasing file and Excel

```
r←hs XLSscl griff
```

1 hs   LS 0/1: screen output?
2 griff V[1]   handle to Excel
        [2]   handle to file
        [3]   ≠0: handle to sheet, if connected
       S   0: use global handles

Global logical variable `xlssav`

1 Set to true by any routine which adds or changes the content of a cell.

2 XLSscl checks it and saves the content to the file:

Saving and Releasing file: Allow releasing Excel

```
1 →(~4⌷griff)/1+⎕LC◇→(0 0≠↑(r em res)←1 COM 'METHOD' griff[2]'Save')/F42
2 →(~0 0≡↑(r em res)←1 COM 'PROPERTY' griff[1]'Visible' 0)/F43
3 →(~0 0≡↑(r em res)←1 COM 'PROPERTY' griff[1]'DisplayAlerts' hs)/F43
4 →(~0 0≡↑(r em res)←1 COM 'METHOD' griff[2]'Close')/F44
5 COM 'RELEASE' griff[2]
6 COM 'RELEASE' griff[1]
```

Closing the file, releasing file and Excel

```
r←hs XLSscl griff
```

1 hs   LS 0/1: screen output?
2 griff V[1]   handle to Excel
        [2]   handle to file
        [3]   ≠0: handle to sheet, if connected
        S   0: use global handles

Global logical variable `xlssav`

1 Set to true by any routine which adds or changes the content of a cell.

2 XLSscl checks it and saves the content to the file:

Saving and Releasing file: Hint at closing file ?

```
1 →(~4⎕griff)/1+⎕LC◊→(0 0≠↑(r em res)←1 COM 'METHOD' griff[2]'Save')/F42
2 →(~0 0≡↑(r em res)←1 COM 'PROPERTY' griff[1]'Visible' 0)/F43
3 →(~0 0≡↑(r em res)←1 COM 'PROPERTY' griff[1]'DisplayAlerts' hs)/F43
4 →(~0 0≡↑(r em res)←1 COM 'METHOD' griff[2]'Close')/F44
5 COM 'RELEASE' griff[2]
6 COM 'RELEASE' griff[1]
```

Closing the file, releasing file and Excel

```
r←hs XLSscl griff
```

1 hs   LS 0/1: screen output?
2 griff V[1]   handle to Excel
         [2]   handle to file
         [3]   ≠0: handle to sheet, if connected
       S   0: use global handles

Global logical variable xlssav

1 Set to true by any routine which adds or changes the content of a cell.

2 XLSscl checks it and saves the content to the file:

Saving and Releasing file: Close file

1 →(~4⎕griff)/1+⎕LC◇→(0 0≠↑(r em res)←1 COM 'METHOD' griff[2]'Save')/F42
2 →(~0 0≡↑(r em res)←1 COM 'PROPERTY' griff[1]'Visible' 0)/F43
3 →(~0 0≡↑(r em res)←1 COM 'PROPERTY' griff[1]'DisplayAlerts' hs)/F43
4 →(~0 0≡↑(r em res)←1 COM 'METHOD' griff[2]'Close')/F44
5 COM 'RELEASE' griff[2]
6 COM 'RELEASE' griff[1]

Closing the file, releasing file and Excel

```
r←hs XLSscl griff
```

1 hs   LS 0/1: screen output?
2 griff V[1]   handle to Excel
        [2]   handle to file
        [3]   ≠0: handle to sheet, if connected
       S   0: use global handles

Global logical variable xlssav

1 Set to true by any routine which adds or changes the content of a cell.

2 XLSscl checks it and saves the content to the file:

Saving and Releasing file: Release method (file)

```
1  →(~4⎕griff)/1+⎕LC◇→(0 0≠↑(r em res)←1 COM 'METHOD' griff[2]'Save')/F42
2  →(~0 0≡↑(r em res)←1 COM 'PROPERTY' griff[1]'Visible' 0)/F43
3  →(~0 0≡↑(r em res)←1 COM 'PROPERTY' griff[1]'DisplayAlerts' hs)/F43
4  →(~0 0≡↑(r em res)←1 COM 'METHOD' griff[2]'Close')/F44
5  COM 'RELEASE' griff[2]
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```

Closing the file, releasing file and Excel

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1 hs   LS 0/1: screen output?
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Global logical variable `xlssav`

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2 XLSscl checks it and saves the content to the file:

Saving and Releasing file: Release Excel

```
1 →(~4⎕griff)/1+⎕LC◊→(0 0≠↑(r em res)←1 COM 'METHOD' griff[2]'Save')/F42
2 →(~0 0≡↑(r em res)←1 COM 'PROPERTY' griff[1]'Visible' 0)/F43
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5 COM 'RELEASE' griff[2]
6 COM 'RELEASE' griff[1]
```

Auxiliary Routines

Setting Properties

1 `r←griff XLSprp par`   Sets a property
2 `r←XLSpws par`   ... of a sheet
3 `r←XLSpwb par`   ... of a file
4 `r←XLSpos num`   Positions
5 `r←XLSspl num`   Area

Auxiliary Routines

Setting Properties

1 `r←griff XLSprp par`   Sets a property
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Auxiliary Routines

Setting Properties

1. `r←griff XLSprp par`   Sets a property
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3. `r←XLSpwb par`   … of a file
4. `r←XLSpos num`   Positions
5. `r←XLSspl num`   Area

German or English/American Version:

```
1 1 COM 'PROPERTY' xlshws 'Range().NumberFormat'(⊂'F1:G1')( ,⊂'???,0' )

2 1 COM 'PROPERTY' xlshws 'Range().NumberFormat'(⊂'F:G')( ,⊂'TT.MM.JJJJ' )
```

Auxiliary Routines

Setting Properties

1	`r←griff XLSprp par`	Sets a property
2	`r←XLSpws par`	... of a sheet
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Auxiliary Routines

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1. `1 COM 'PROPERTY' xlshws 'Range().NumberFormat'(⊂'F1:G1')( ,⊂'???,0' )`

2. `1 COM 'PROPERTY' xlshws 'Range().NumberFormat'(⊂'F:G')( ,⊂'TT.MM.JJJJ' )`

Background

Background

1. Studienstiftung des deutschen Volkes: government payed organization giving scholarships to brilliant students for bachelor, master and Ph.D. studies.

2. Alumni and Alumnae are organizing a winter academy.

3. Accommodation is booked with a travel agency.

4. We keep a waiting list and deal with cancellations and replacements.

5. Alumni association supports the academy, non-members and members of the association with different amount.

Background

Background

1. Studienstiftung des deutschen Volkes.

2. Alumni and Alumnae are organizing a winter academy, a mixed programm of academic and skiing activities.

3. Accommodation is booked with a travel agency.

4. We keep a waiting list and deal with cancellations and replacements.

5. Alumni association supports the academy, non-members and members of the association with different amount.

Background

Background

1. Studienstiftung des deutschen Volkes.

2. Alumni and Alumnae are organizing a winter academy.

3. Accommodation is booked with a travel agency. We get a complete house and must fill it.

4. We keep a waiting list and deal with cancellations and replacements.

5. Alumni association supports the academy, non-members and members of the association with different amount.

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The process

The process

As a member of the organization board I am organizing the process for application, booking and cancellation with students and alumni on one and the agency on the other side. The steps in the process are:

1. Students, alumni and alumnae subscribe to take part.
2. We decide by a random process who will participate (state 0). Non-participants fill a waiting list.
3. We ask the participants to send bank account details (state 1).
4. They send this information (state 2).
5. The participants get the link to book with the travel agency (state 3).
6. The agency confirms their booking (state 4).

The process

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The steps in the process are:

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The process

The process

Cancellation

1. Set state of cancelling participant from n to -n.
2. This deletes cancelling participant from list.
3. Get an additional participant from the waiting list.
4. Inform new participant by mail.

Mailing all participants - 1

Mail1G: participants should provide details of bank account

1. Prepares mail to 4 groups: scholars or alumni/alumnae, non-members and members of alumni association

2. changes state from 0 to 1

Mailing all participants - 1

Mail1G: participants should provide details of bank account

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Mailing all participants - 1

Mail1G: participants should provide details of bank account

1. Prepares mail to 4 groups: scholars or alumni/alumnae, non-members and members of alumni association
2. changes state from 0 to 1

Mail1: participants should provide details of bank account

1. Prepares mail to individual participants, content depends on
   1. scholars or alumni/alumnae
   2. non-members or members of alumni association
2. changes state from 0 to 1

Mailing all participants - 1

Mail1G: participants should provide details of bank account

1 Prepares mail to 4 groups: scholars or alumni/alumnae, non-members and members of alumni association

2 changes state from 0 to 1

Mail1: participants should provide details of bank account

1 Prepares mail to individual participants, content depends on

   1 scholars or alumni/alumnae

   2 non-members or members of alumni association

2 changes state from 0 to 1

Mailing all participants - 1

Mail1G: participants should provide details of bank account

1. Prepares mail to 4 groups: scholars or alumni/alumnae, non-members and members of alumni association
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   1. scholars or alumni/alumnae
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Mailing all participants - 1

Mail1G: participants should provide details of bank account

1. Prepares mail to 4 groups: scholars or alumni/alumnae, non-members and members of alumni association
2. changes state from 0 to 1

Mail1: participants should provide details of bank account

1. Prepares mail to individual participants, content depends on
   1. scholars or alumni/alumnae
   2. non-members or members of alumni association
2. changes state from 0 to 1

Mailing all participants - 2

Mail2G: sends booking link of travel agency

1 Prepares mail to 4 groups: sex, scholars or alumni/alumnae

2 changes state from 2 to 3

Mailing all participants - 2

Mail2G: sends booking link of travel agency

1. Prepares mail to 4 groups: sex, scholars or alumni/alumnae
2. changes state from 2 to 3

Mailing all participants - 2

Mail2G: sends booking link of travel agency

1. Prepares mail to 4 groups: sex, scholars or alumni/alumnae
2. changes state from 2 to 3

Mail2: sends booking link of travel agency

1. Prepares mail to individual participants, content depends on
   1. sex
   2. scholars or alumni/alumnae
2. changes state from 2 to 3

Mailing all participants - 2

Mail2G: sends booking link of travel agency

1. Prepares mail to 4 groups: sex, scholars or alumni/alumnae
2. changes state from 2 to 3

Mail2: sends booking link of travel agency

1. Prepares mail to individual participants, content depends on
   1. sex
   2. scholars or alumni/alumnae
2. changes state from 2 to 3

Mailing all participants - 2

Mail2G: sends booking link of travel agency

1. Prepares mail to 4 groups: sex, scholars or alumni/alumnae
2. changes state from 2 to 3

Mail2: sends booking link of travel agency

1. Prepares mail to individual participants, content depends on
   1. sex
   2. scholars or alumni/alumnae
2. changes state from 2 to 3

Mailing all participants - 2

Mail2G: sends booking link of travel agency

1. Prepares mail to 4 groups: sex, scholars or alumni/alumnae
2. changes state from 2 to 3

Mail2: sends booking link of travel agency

1. Prepares mail to individual participants, content depends on
   1. sex
   2. scholars or alumni/alumnae
2. changes state from 2 to 3

Mailing all participants - 3

Mail3: reminding to book with travel agency

1 Prepares mail to individual participants, content depends on

   1. sex
   2. scholars or alumni/alumnae

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Mailing all participants - 3

Mail3: reminding to book with travel agency

1. Prepares mail to individual participants, content depends on
   1. sex
   2. scholars or alumni/alumnae

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Mailing all participants - 3

Mail3: reminding to book with travel agency

1. Prepares mail to individual participants, content depends on
   1. sex
   2. scholars or alumni/alumnae

Some Demonstration

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Questions?

??   ??

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