

OcrComplementaryTools.Activities for UiPath

Overview

OcrComplementaryTools.Activities Package for UiPath.

OCR is important to expand RPA coverage, because it's one of digitalize technology from real world to computer world.

However, at this time, OCR is not 100% accuracy in some cases such as handwritten characters, or language using various characters like chinese character etc.

This activity package provides three functions to complement OCR and help to improve its accuracy.

- Sort by Edit Distance (Levenshtein Distance)
- Majority Decision
- Review Dialog

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Requirements

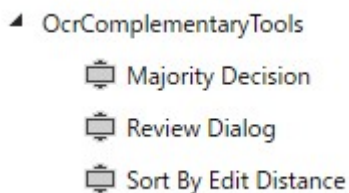
UiPath Platform
(Tested on 2018.4 and 2019.6(Community Edition))

(DanHarlley/Fastenshtein (Library for edit distance) This library is included in nupkg)

How to use

Preparation

Install by Package Manager in UiPath Studio.
You can see the following activities in activity panel.



Development

Sort by Edit Distance Activity

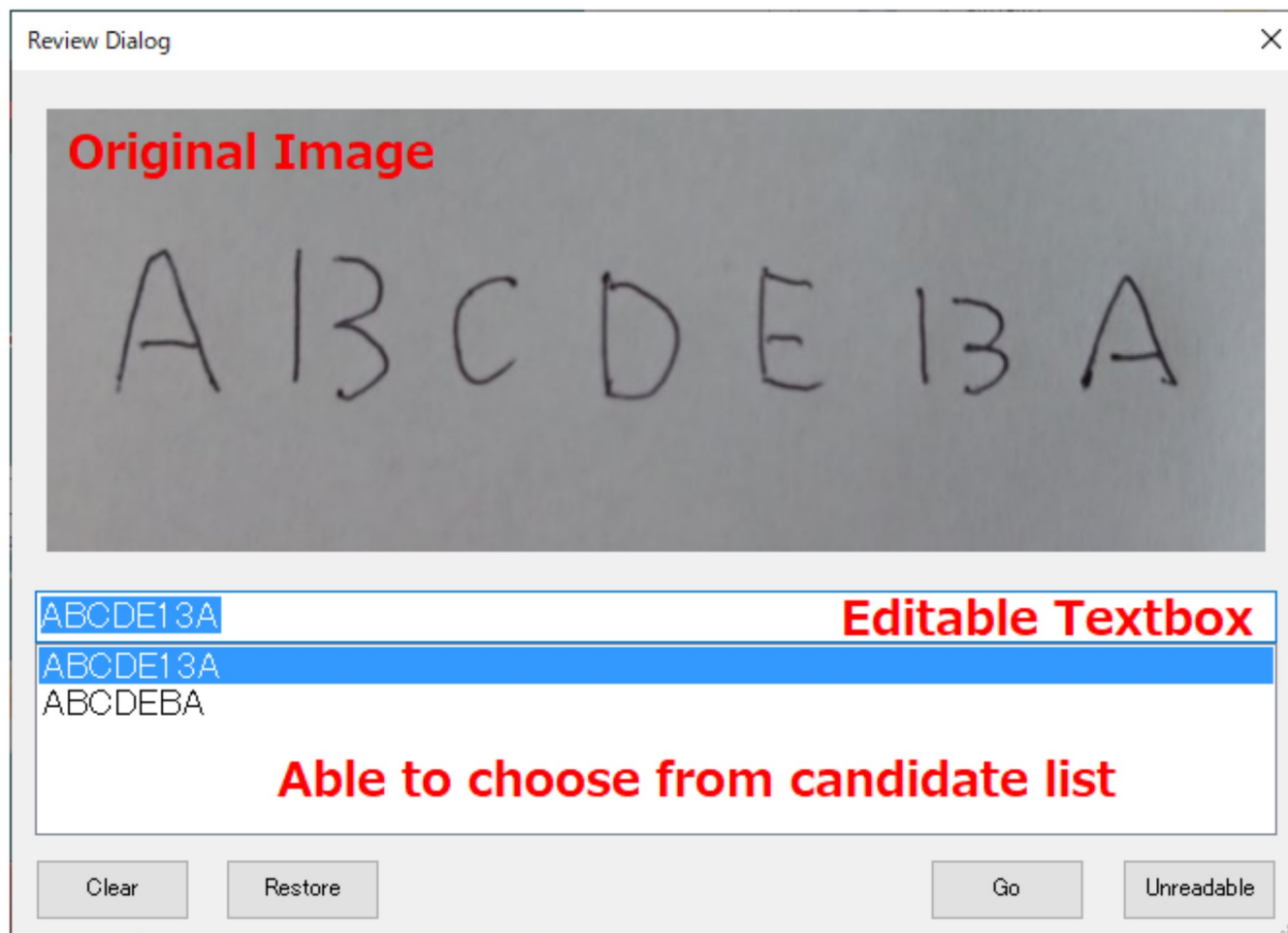
Drag and drop "Sort by Edit Distance Activity" to your workflow.
Usually it will be after OCR activity.
First, Set OCR data to TargetText property.
Then, Set candidate list to CandidateStringList property.
Finally, you can get sorted string array from SortedTextArray property.

Majority Decision Activity

Drag and drop "Majority Decision Activity" to your workflow.
Usually it will be after multiple OCR activities.
First, Set multiple OCR data to CAndidateStringList property.
Then set string various to Unanimous and/or Majority property.
Finally, you can get string which is unanimous and/or majority.

Review Dialog Activity

Drag and drop "Review Dialog Activity" to your workflow.
You need to set 3 properties at least.
InputImage property is usually source image of OCR.
InputText property is usually result of OCR.It's good you set CandidateStringList instead of InputText in case using Sort by edit distasnce etc.
ReviewedText property is output string type variable.



Activities

Sort by Edit Distance

- Input
 - CandidateStringList (System.Collections.Generic.List<string>)
Candidate List such as master data etc.
 - TargetText (string)
Target Text. Usually, OCR result.
- Output
 - IsMarched (Boolean)
Return true if the list contains target text.
 - SortedNormalizedEditDistanceArray (double[])
Return double type array which is sorted by normalized edit distance.
 - SortedTextArray (string[])
Return string array which is sorted by normalized edit distance.

Majority Decision

- Input
 - CandidateStringList (System.Collections.Generic.List<string>)
Candidate List from multiple OCR engines.
- Output
 - Majority (String)
Return string if there are same strings more than half of list.
 - RMSEArray (double[])
Return double type array which is sorted by RMSE of normalized edit distance.
RMSE: Root Mean Squared Error
 - SortedTextArray (string[])
Return string array which is sorted by RMSE of normalized edit distance.
 - Unanimous (String)
Return string if all are same.

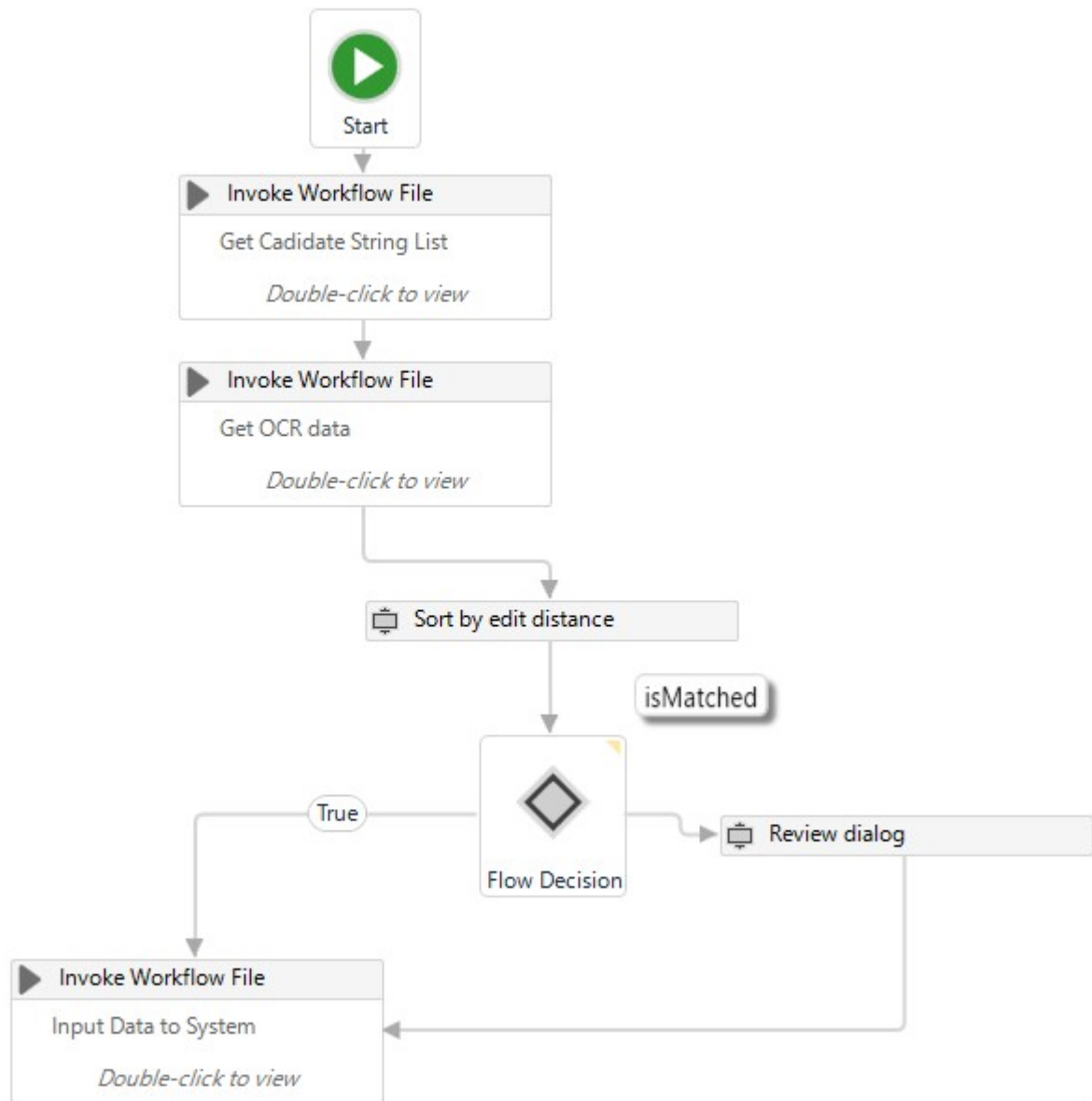
ReviewDialog Activity

- Dialog
 - DisableEnterSubmit (Boolean)
Disable to submit when press enter key.
 - FontSize (Int32)
Set font size for editable TextBox.
 - FrameWidth (Int32)
Image/Textbox width.
 - ImageFrameHeight (Int32)
Image frame height.
 - TextFrameHeight (Int32)
Textbox height.
- Input
 - CandidateStringList (System.Collections.Generic.List<string>)
Candidate List from Sort by Edit distance, Majority Decision etc.
 - InputImage (System.Drawing.Image)
Image for review. Usually this value is source image of OCR.
 - InputText (string)
Text for review. Usually this value is result of OCR.
- Output

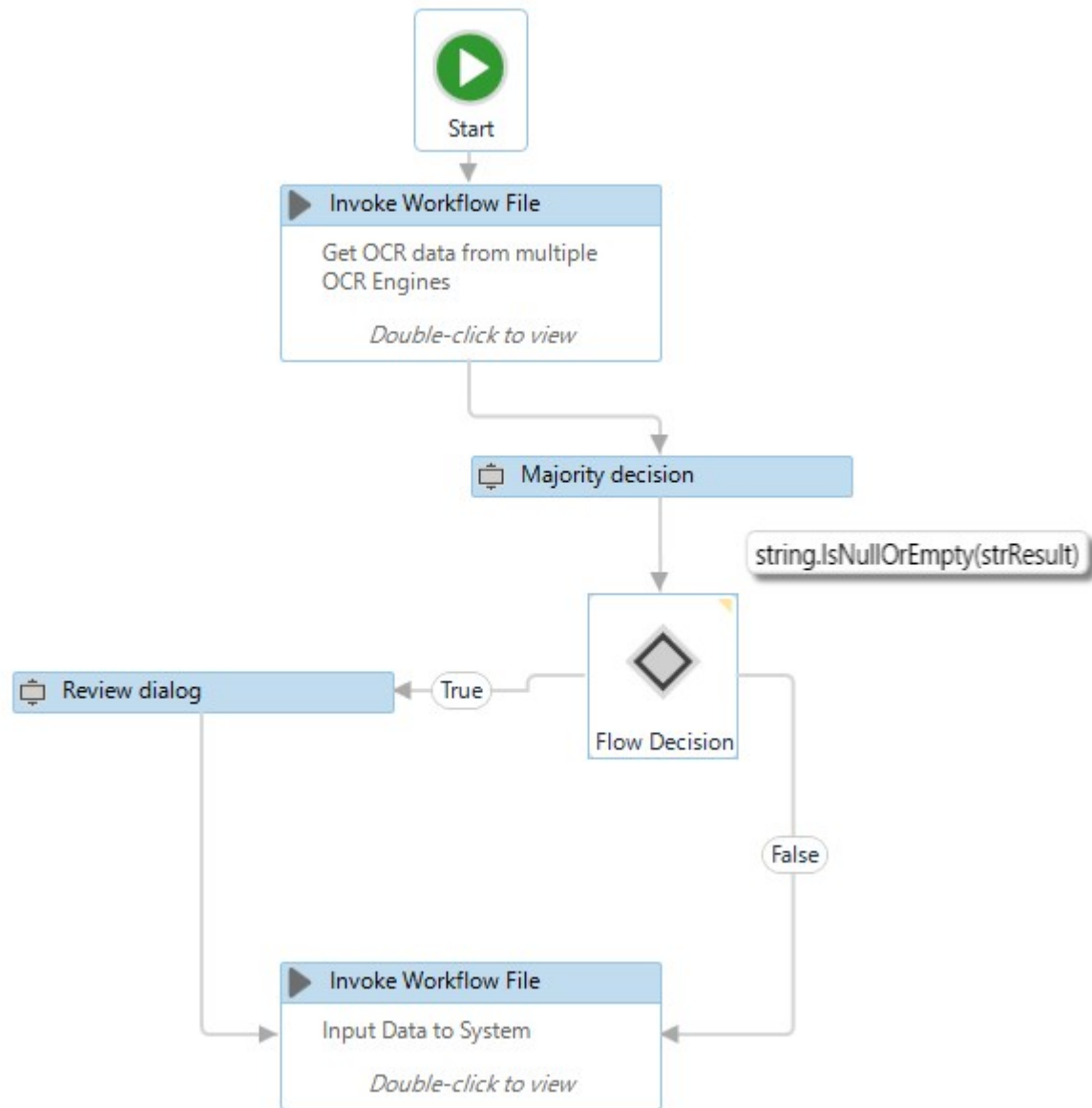
- IsModified (Boolean)
If the text was changed by user.
- IsUnreadable (Boolean)
If user cannot read image as text.
- ReviewedText (string)
Reviewed text. It might be modified by user.

Samples

Sort by edit distance + Review dialog



Majority Decision + Review dialog

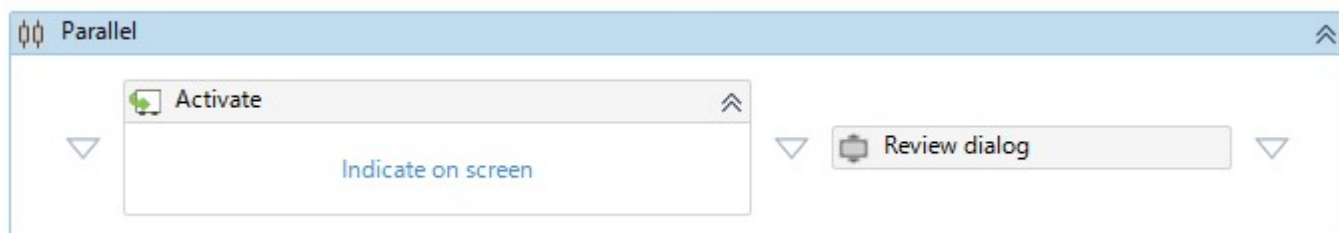


Notes

How to make ReviewDialog active.

Often, Review Dialog is hidden by other window or inactive.

In this case, please use Parallel activity and Activate activity which indicate the dialog as the following image.



Selector of the activate activity may be as follows:

```
"<wnd app='uipath.executor.exe' ctrlname='FormMain' />"
```

License and Copyright

This activity package is under the MIT license.

Copyright (c) 2018-2019 Yoichi Suetake

This package includes the following library for calculating edit distance.

DanHartley/Fastenshtein Copyright (c) 2017 DanHartley

<https://github.com/DanHartley/Fastenshtein>

The library is under the MIT license.