Read PDF Files

You can read and separately extract the content of .pdf files using activities that can read all characters included in the document.

Depending on your needs, you can use a simple activity that can recognize the characters, or use one with an OCR engine. The benefits of using an OCR engine are that the document reading can be applied even on scanned, signed, or handwritten documents.

The example below presents two situations of reading a .pdf file:

- The first one explains how to read the .pdf file while using the **[Read PDF Text]** activity.
- The second one explains how to read the .pdf file while using the **[Read PDF with OCR]** activity. The main difference between the two scenarios is that the second one is also using OCR engines, meaning that the details of extracted information are more accurate than in the first case if the analyzed file is an image, scanned, or includes signed or handwritten fields. You can find both activities in the **UiPath.PDF.Activities** package.

Only one workflow is required for both scenarios, common until the point of asking the user to choose the desired reading method.

This is how the automation process can be built:

1. Open Studio and create a new **Process**.
2. Drag a **Flowchart** container in the **Workflow Designer**.

- Create the following variable:

Variable Name Variable Type Default Value

``{.rdmd-code .lang- **GenericValue** - .theme-light
data-lang="" name=""}

chooseOption

> *Note:*
>
> *Add your*
>
> *.pdf files to the project directory in order to be able to run the entire process from the same place or download this example in order to use the given file.*

3. Drag an **Input Dialog** activity and connect it to the **Start Node**.

- In the **Properties** panel, add the expression "Choose one option below:" in the **Label** field.
- Add the expression {"Read PDF Text", "Read PDF With OCR"} in the **Options** field.
- Add the value "Options" in the **Title** field.
- Add the variable chooseOption in the **Result** field.

4. Place a **Flow Decision** activity below the **Input Dialog** activity and connect it to it.

- In the **Properties** panel, add the expression chooseOption = "Read PDF Text" in the **Condition** field.

5. Drag a **Sequence** container and connect it to the **True** branch of the **Flow Decision** activity. The name of the **Sequence** should be **Read PDF Text**. This activity extracts information by using regular expressions.

- Create the following variables:

Variable Name	Variable Type	Default Value
``{.rdmd-code .lang- **String** - .theme-light data-lang="" name=""} extractedText		
``{.rdmd-code .lang- **System.String[]** - .theme-light data-lang="" name=""} arrayText		
``{.rdmd-code .lang- **GenericValue** - .theme-light data-lang="" name=""} address		
``{.rdmd-code .lang- **String** - .theme-light data-lang="" name=""} city		
``{.rdmd-code .lang- **String** - .theme-light data-lang="" name=""} phoneNumber		
``{.rdmd-code .lang- **String** - .theme-light data-lang="" name=""} invoiceNumber		
``{.rdmd-code .lang- **GenericValue** - .theme-light data-lang="" name=""} vendor		
``{.rdmd-code .lang- **String** - .theme-light data-lang="" name=""} bankName		
``{.rdmd-code .lang- **String** - .theme-light data-lang="" name=""} bankAccount		
``{.rdmd-code .lang- **String** - .theme-light data-lang="" name=""}		

ibanCode

6. Drag a **Sequence** container and connect it to the **False** branch of the **Flow Decision** activity. The name of the **Sequence** should be **Read PDF With OCR**. This activity extracts information by using an OCR engine (Microsoft OCR and Tesseract OCR).

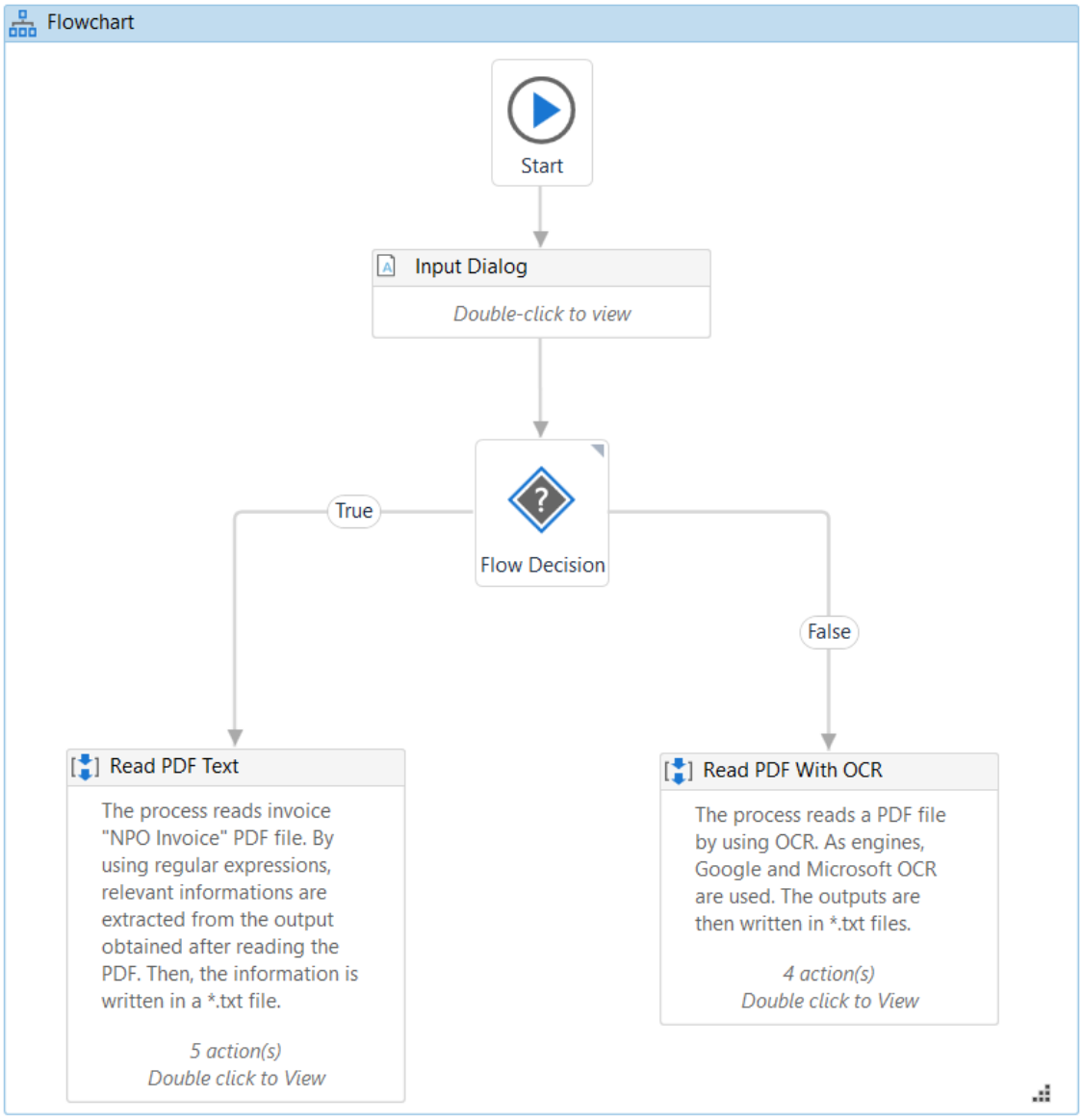
- Create the following variable:

Variable Name	Variable Type	Default Value
``{.rdmd-code .lang- **String** - .theme-light data-lang="" name=""} extractedTextTesseract		

``{.rdmd-code .lang- **String** - .theme-light
data-lang="" name=""}

extractedTextMicrosoft

This is how your workflow should look up until this point:



Read a PDF File using the **Read PDF Text** activity

1. Open the **Read PDF Text** sequence container by double-clicking on it.
2. Drag a **Read PDF Text** activity inside the sequence.

- In the **Properties** panel, add the expression "NPO Invoice.pdf" in the **FileName** field.
- Add the value "All" in the **Range** field.
- Add the variable extractedText in the **Text** field.

3. Place an **Assign** activity under the **Read PDF Text** activity.

- Add the variable arrayText in the **To** field.
- Add the expression extractedText.Split(Environment.NewLine.ToArray, StringSplitOptions.RemoveEmptyEntries) in the **Value** field.

4. Drag an **If** activity below the **Assign** activity.

- Add the expression arrayText(0).Equals("Tiefland Glass AG") in the **Condition** field.

5. Drag an **Assign** activity inside the **Sequence** container.

- Add the variable address in the **To** field.
- Add the expression arrayText(2) in the **Value** field.

6. Drag another **Assign** activity and place it below the previous one.

- Add the variable city in the **To** field.
- Add the expression arrayText(3).Split(","c)(0) in the **Value** field.

7. Drag another **Assign** activity and place it below the previous one.

- Add the variable phoneNumber in the **To** field.
- Add the expression arrayText(4).Split(":"c)(1).Split({"INVOICE"},StringSplitOptions.None)(0) in the **Value** field.

8. Drag another **Assign** activity and place it below the previous one.

- Add the variable invoiceNumber in the **To** field.
- Add the expression arrayText(4).Split(":"c)(1).Split({"INVOICE"},StringSplitOptions.None)(1).Split("#"c)(1) in the **Value** field.

9. Drag another **Assign** activity and place it below the previous one.

- Add the variable vendor in the **To** field.
- Add the expression arrayText(arrayText.Count-5) in the **Value** field.

10. Drag an **Assign** activity inside the **Else** field.

- Add the variable address in the **To** field.
- Add the expression arrayText(1) in the **Value** field.

11. Drag another **Assign** activity and place it below the previous one.

- Add the variable city in the **To** field.
- Add the expression arrayText(2).Split(","c)(0) in the **Value** field.

12. Drag another **Assign** activity and place it below the previous one.

- Add the variable phoneNumber in the **To** field.
- Add the expression arrayText(3).Split(":"c)(1).Split({"INVOICE"},StringSplitOptions.None)(0) in the **Value** field.

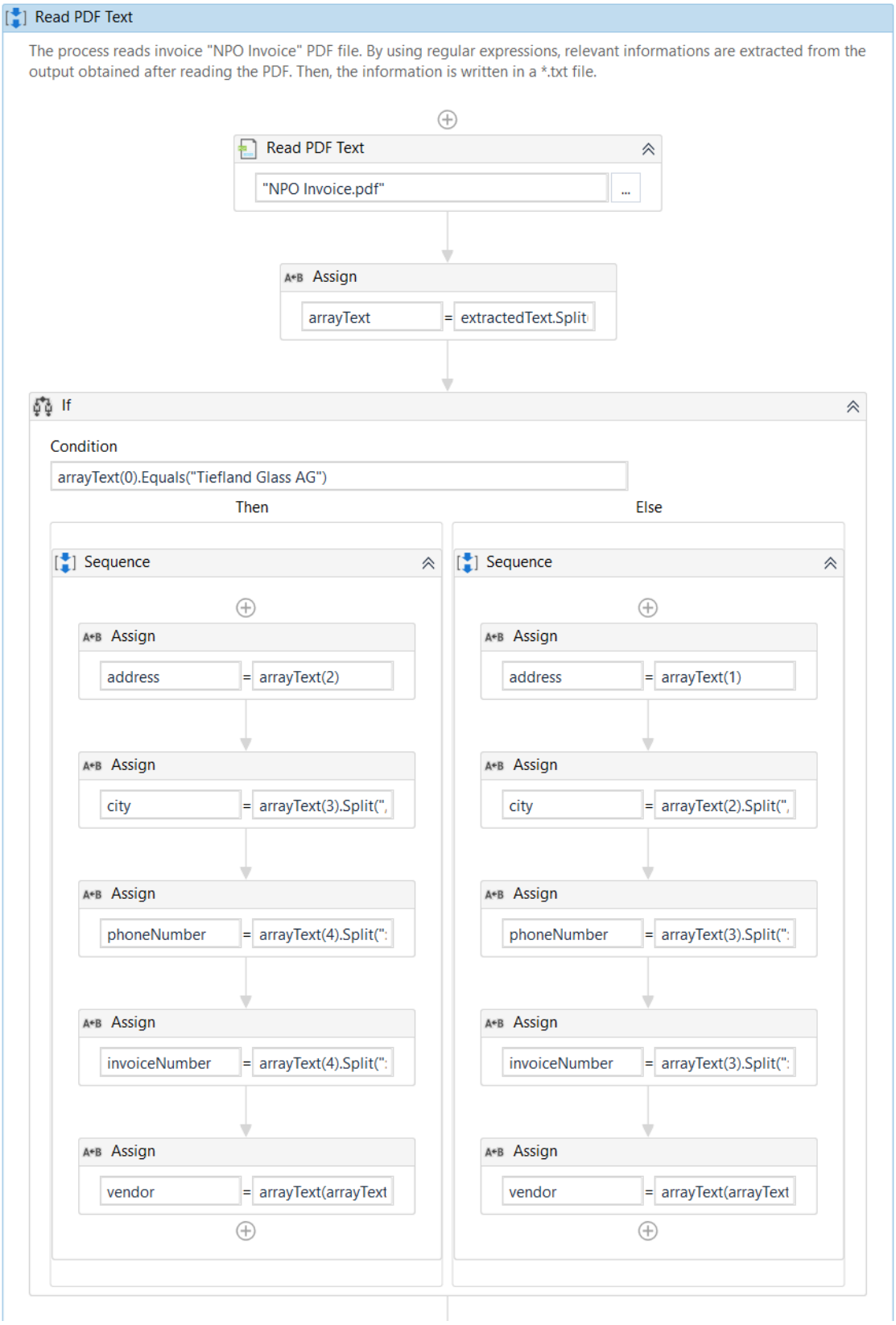
13. Drag another **Assign** activity and place it below the previous one.

- Add the variable invoiceNumber in the **To** field.
- Add the expression arrayText(3).Split(":"c)(1).Split({"INVOICE"},StringSplitOptions.None)(1).Split("#"c)(1) in the **Value** field.

14. Drag another **Assign** activity and place it below the previous one.

- Add the variable vendor in the **To** field.
- Add the expression arrayText(arrayText.Count-5) in the **Value** field.

This is how your **Sequence** should look up until this point:



15. Place a **For Each** activity below the **If** container and double-click the activity to open it.

- Add the variable arrayText in the **Value** field.

16. Drag an **If** activity inside the **Body** container of the **For Each** activity.

- Add the expression item.Contains("Bank Name:") in the **Condition** field.

17. Drag an **Assign** activity inside the **Then** field.

- Add the variable bankName in the **To** field.
- Add the expression item.Split(":"c)(1) in the **Value** field.

18. Place an **If** activity below the previous one.

- Add the expression item.Contains("Bank Account:") in the **Condition** field.

19. Drag an **Assign** activity inside the **Then** field.

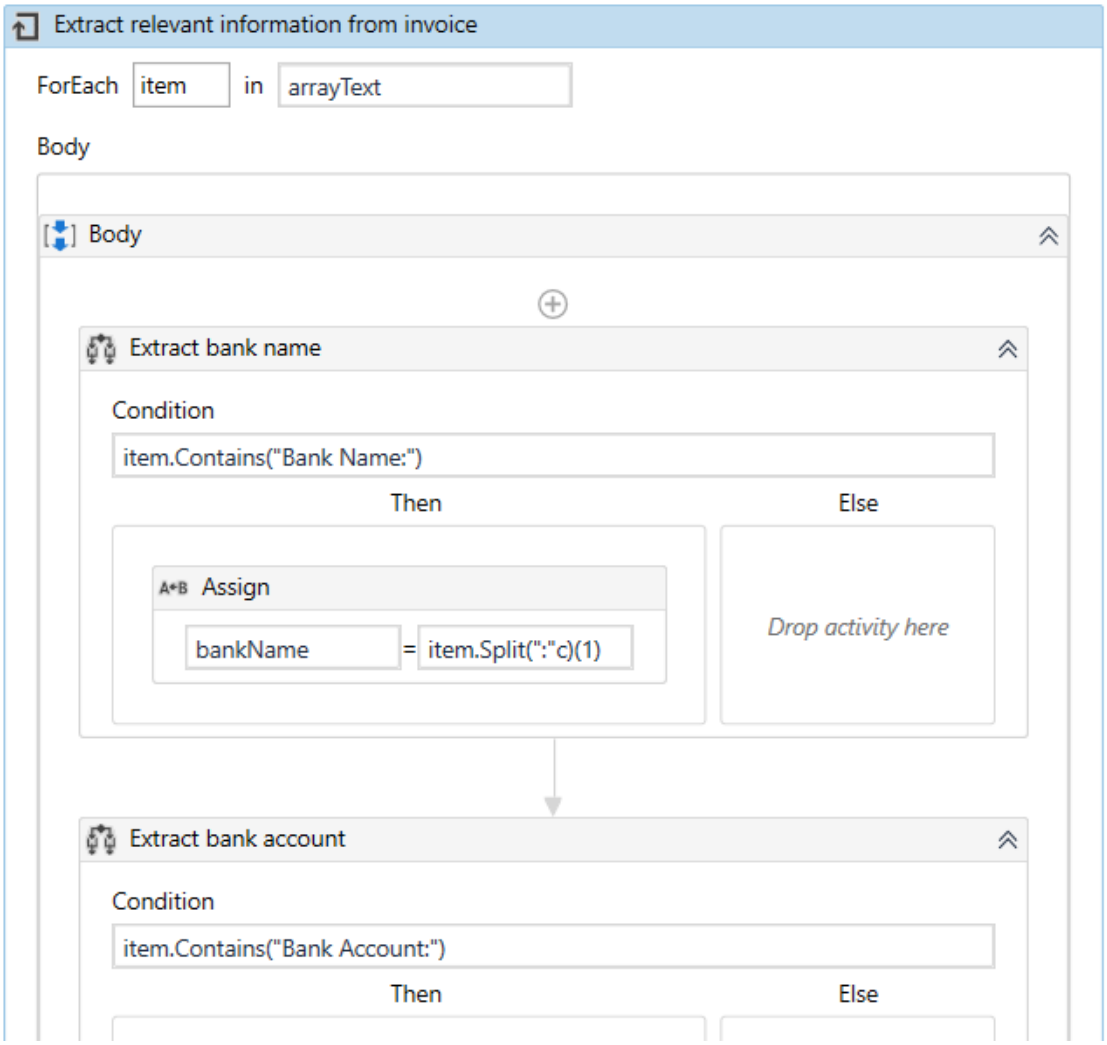
- Add the variable bankName in the **To** field.
- Add the expression item.Split(":"c)(1) in the **Value** field.

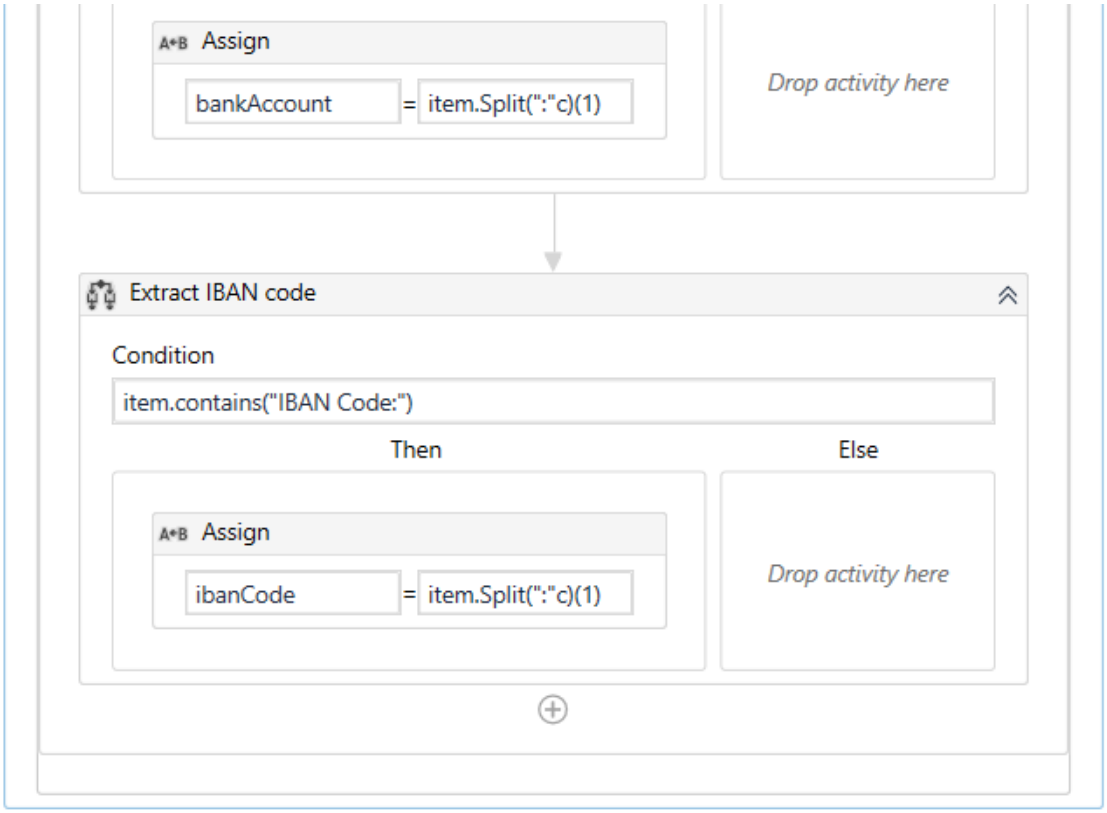
20. Place an **If** activity below the previous one.

- Add the expression item.contains("IBAN Code:") in the **Condition** field.

21. Drag an **Assign** activity inside the **Then** field.

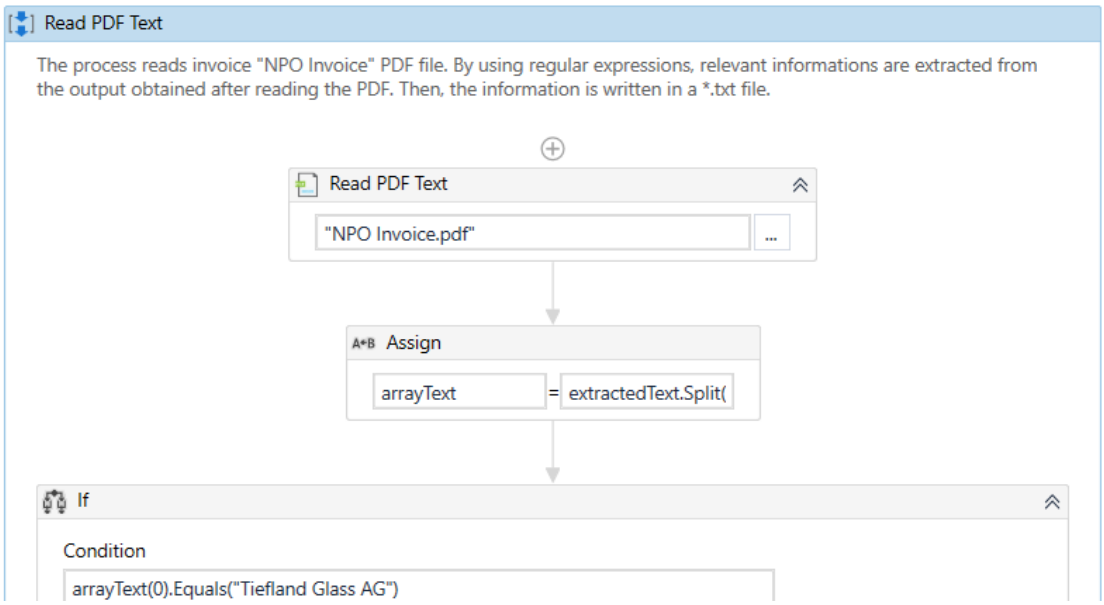
- Add the variable ibanCode in the **To** field.
- Add the expression item.Split(":"c)(1) in the **Value** field.
  This is how the **For Each** container should look:





22. Return to the **Read PDF Text** sequence and drag a **Write Text File** activity below the **For Each** activity.

- Add the value "InvoiceDetails.txt" in the **FileName** field.
- Add the expression "Invoice details"+Environment.NewLine+Environment.NewLine+"Vendor: "+vendor+Environment.NewLine+"Vendor address: "+address+Environment.NewLine+"City: "+city+Environment.NewLine+"Phone number:"+phoneNumber+Environment.NewLine+"Invoice number:"+invoiceNumber+Environment.NewLine+"Bank name:"+bankName+Environment.NewLine+"Bank account:"+bankAccount+Environment.NewLine+"IBAN Code:"+ibanCode in the **Text** field.
  This is how the **For Each** container should look:



23. Return to the **Main** workflow working area.

Read a PDF File using the **Read PDF with OCR** activity

1. Open the **Read PDF With OCR** sequence container by double-clicking on it.
2. Drag a **Read PDF With OCR** activity inside the sequence.

- Add the value "Invoice02.pdf" in the **FileName** field.
- In the **Properties** panel, add the value 1 in the **DegreeOfParallelism** field.

3. Drag the **Google OCR** engine inside the **Read PDF With OCR** activity.

- In the **Properties** panel, add the variable extractedTextTesseract in the **Text** field.

4. Drag another **Read PDF With OCR** activity and place it below the previous one.

- Add the value "Invoice02.pdf" in the **FileName** field.
- In the **Properties** panel, add the value 1 in the **DegreeOfParallelism** field.

5. Drag the **Microsoft OCR** engine inside the **Read PDF With OCR** activity.

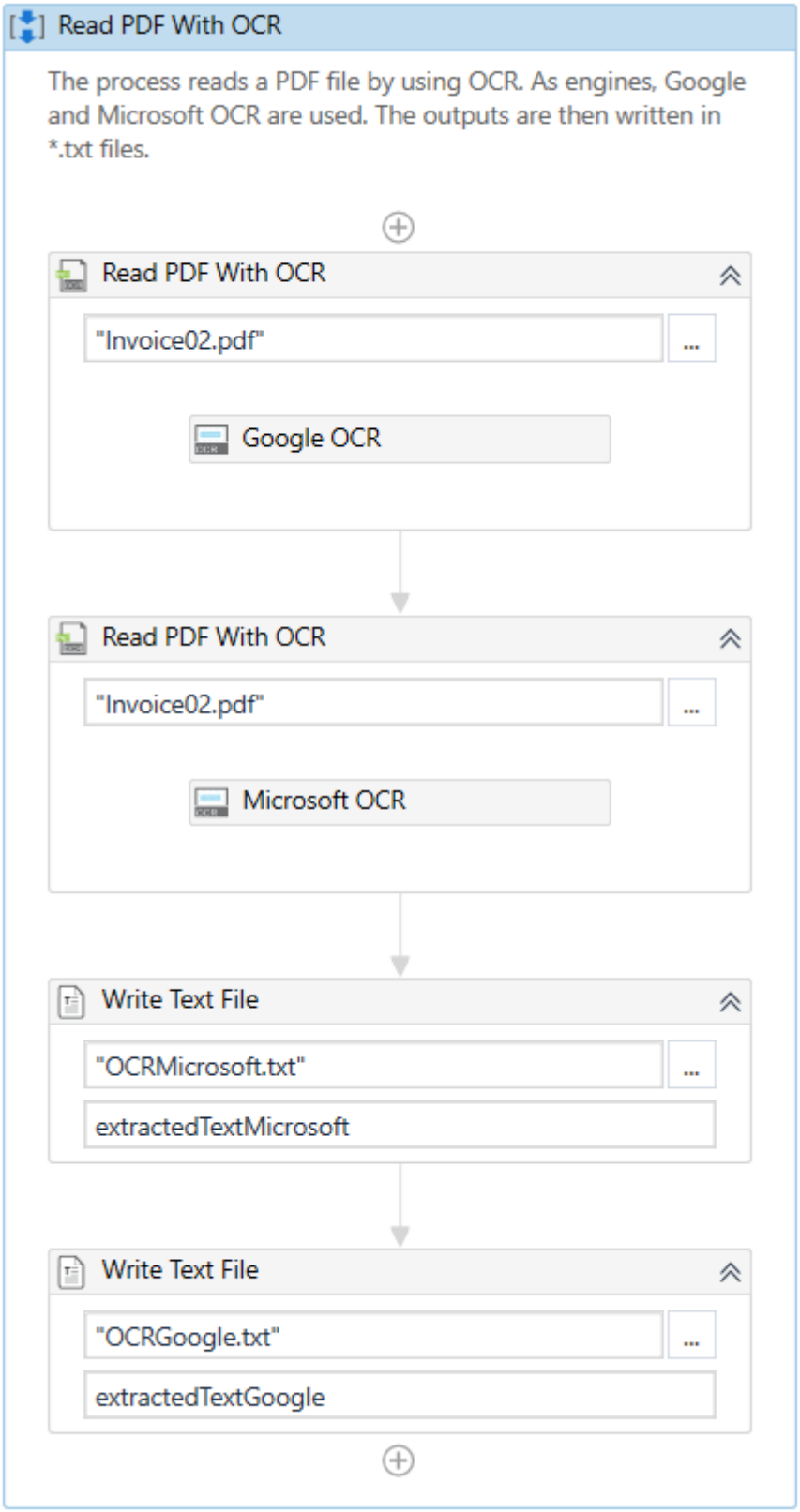
- In the **Properties** panel add the variable extractedTextMicrosoft in the **Text** field.

6. Drag a **Write Text File** activity below the **Read PDF With OCR** activity.

- Add the value "OCRMicrosoft.txt" in the **FileName** field.
- Add the variable extractedTextMicrosoft in the **Text** field.

7. Drag a **Write Text File** activity below the previous **Write Text File** activity.

- Add the value "OCRTesseract.txt" in the **FileName** field.
- Add the variable extractedTextTesseract in the **Text** field. This is how the **Read PDF with OCR** sequence should look:



8. Run the process. The robot extracts the data using the specified process and saves the output in a .txt file.