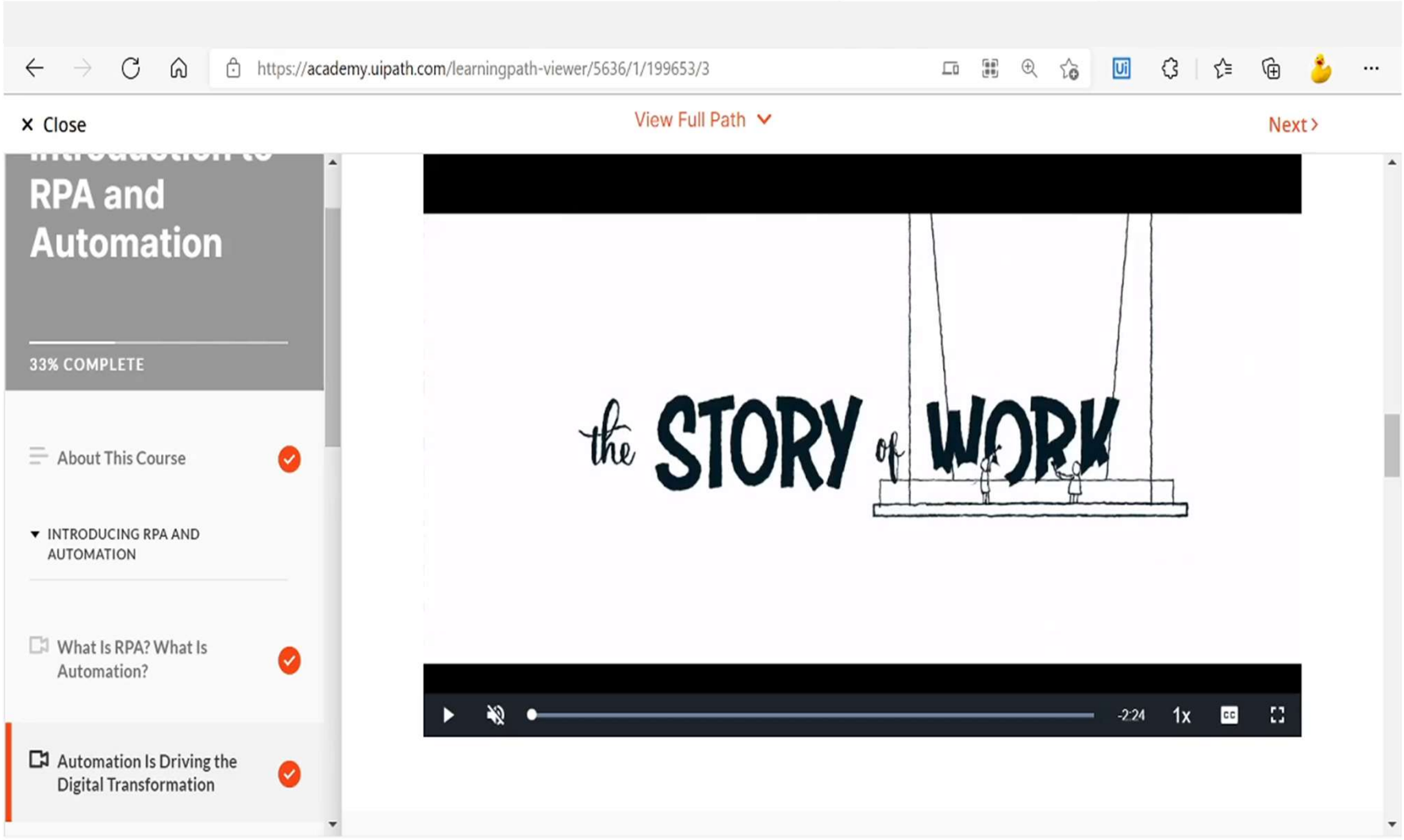
DENSO
Crafting the Core

# Basic RPA (UiPath)

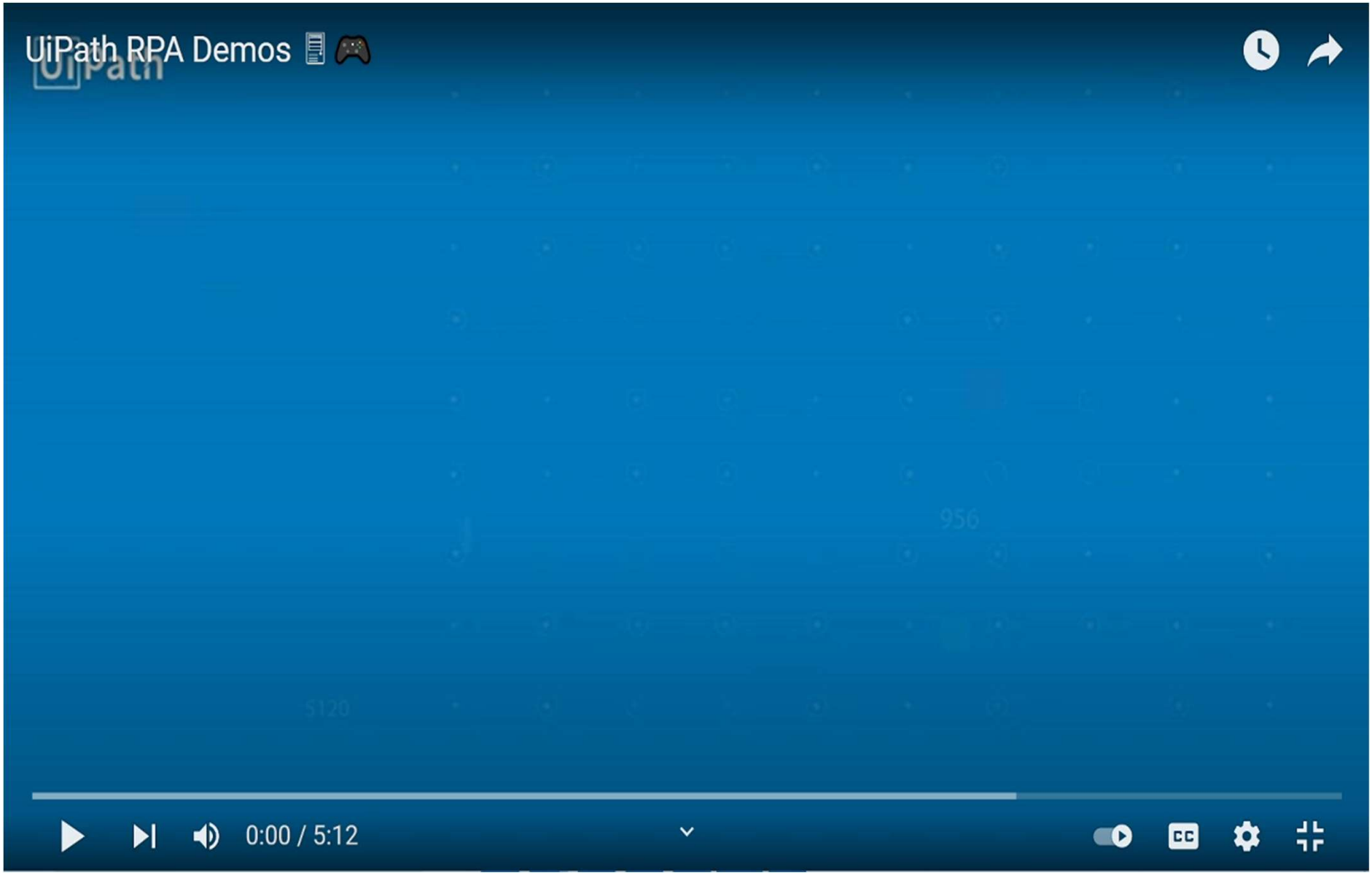
DIAT Regional Indirect Process Innovation





© DENSO CORPORATION All RightsReserved.

# RPA Demos





© DENSO CORPORATION All RightsReserved.

# AGENDA

| No | Topic |
|---|---|
| 1 | What is RPA ? |
| 2 | What is the purpose of RPA introduction ? |
| 3 | Why RPA ? |
| 4 | How to implement RPA ? |
| 5 | Introduction to UiPath |
| 6 | Get to know UiPath Studio Environment (navigation, flowchart-sequence, scope, activity, property) |
| 7 | Introduction to activities and variables (string & integer) |
| 8 | Build your first robot (practice session) |
| 9 | Understand Variable & Data type |
| 10 | Logical function: If statement & Loops |

| No | Topic |
|---|---|
| 11 | Introduction to Selector |
| 12 | Common useful activities in UiPath |
| 13 | Asia Regional Robot Naming Standardization |
| 14 | Quiz, Q&A |


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Introduction and Training Objective

## Introduction

This is an introduction course to **R**obotic **P**rocess **A**utomation (RPA) with UiPath. DIAT RIPI select UiPath software as it has a wide function, and able to be integrated with various language (VB, C#, Python, etc).

In this course you will:

- Learn UiPath environment
- Observe basic RPA logic that will help you in visualize and plan on how to design your robot process

## Training Objective

This training is customized by DIAT RIPI to enable End User visualize their current work process / SOP and then to translate it into Robot workflow.

After attending this course, attendees are expected to be able to:

- Create a simple workflow and robot
  With this skill, attendees will be able to increase their office productivity and manage work-life balance (increase employee satisfaction)


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# What is RPA ?

RPA is one of a key part of long-term intelligent automation strategy for businesses. The main goal of RPA is to transfer repetitive and boring task performed by human to robot

## What is RPA ?

Robotic Process Automation is a software robots and artificial intelligence (AI) that able to interact with existing system. This robot will perform task based on rules and mimic what humans do, by using GUI (Graphic User Interface) and existing processes

## Typical Uses of RPA

1. High volume, repetitive, consistent data entry, or execution of a well-defined series of steps
2. Input and/or synchronizing data between multiple systems
3. Supervising/ checking the data entry work of others against a set of rules
4. Rule-based decision making

## Benefits to Business

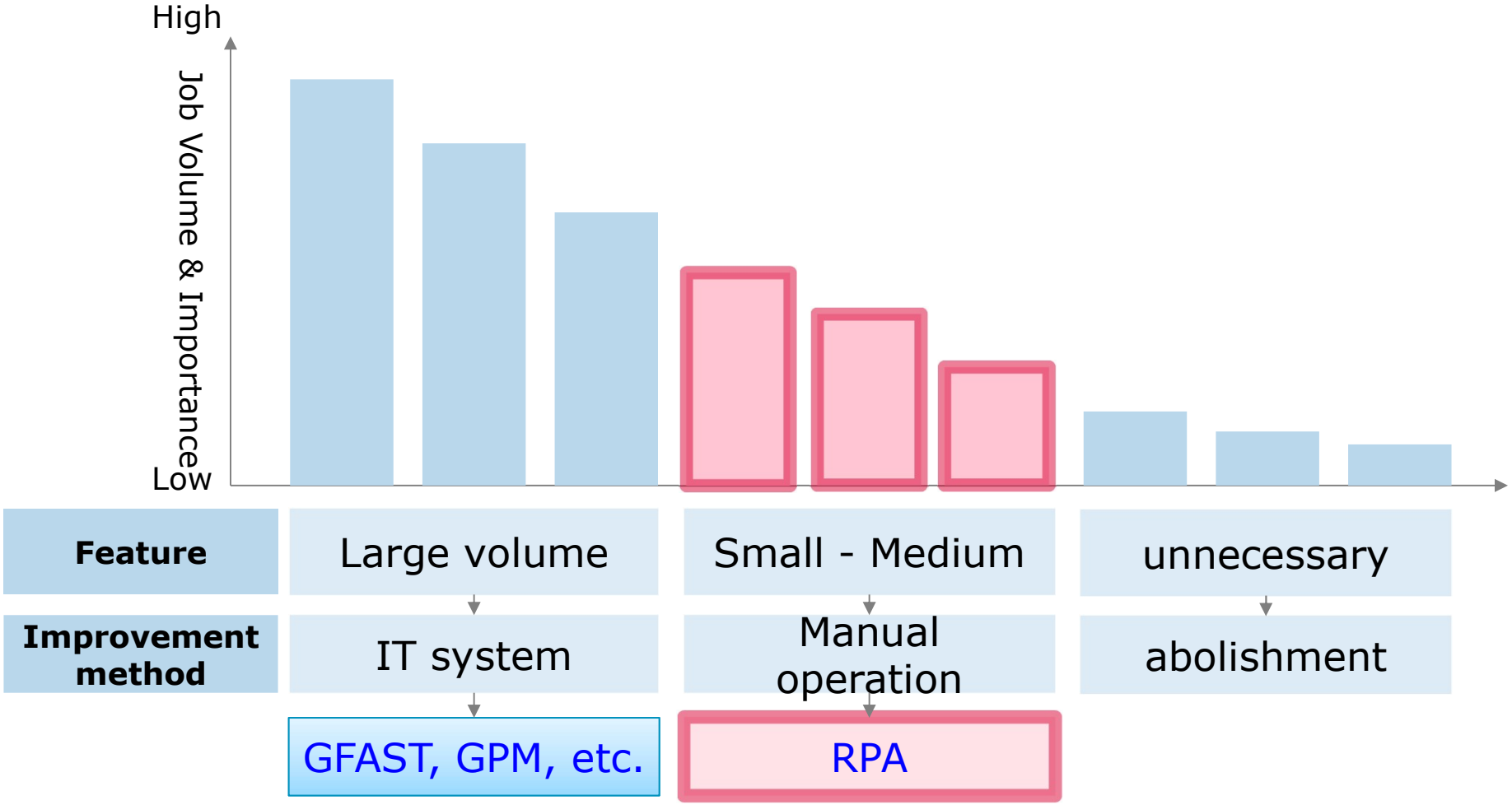
1. Increase accuracy, consistency, and speed
2. Handle repetitive, low value tasks inexpensively
3. Instantly scale up/down to meet demand
4. Digital labor able to perform work 24/7
5. Full digital audit trail of tasks & steps
6. Consistent, no bad days & mistakes


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# What is the purpose of RPA introduction?

➢ Eliminate small-medium scale and manual operation that CANNOT be reached by IT system

〈Image of the difference between IT system and RPA〉



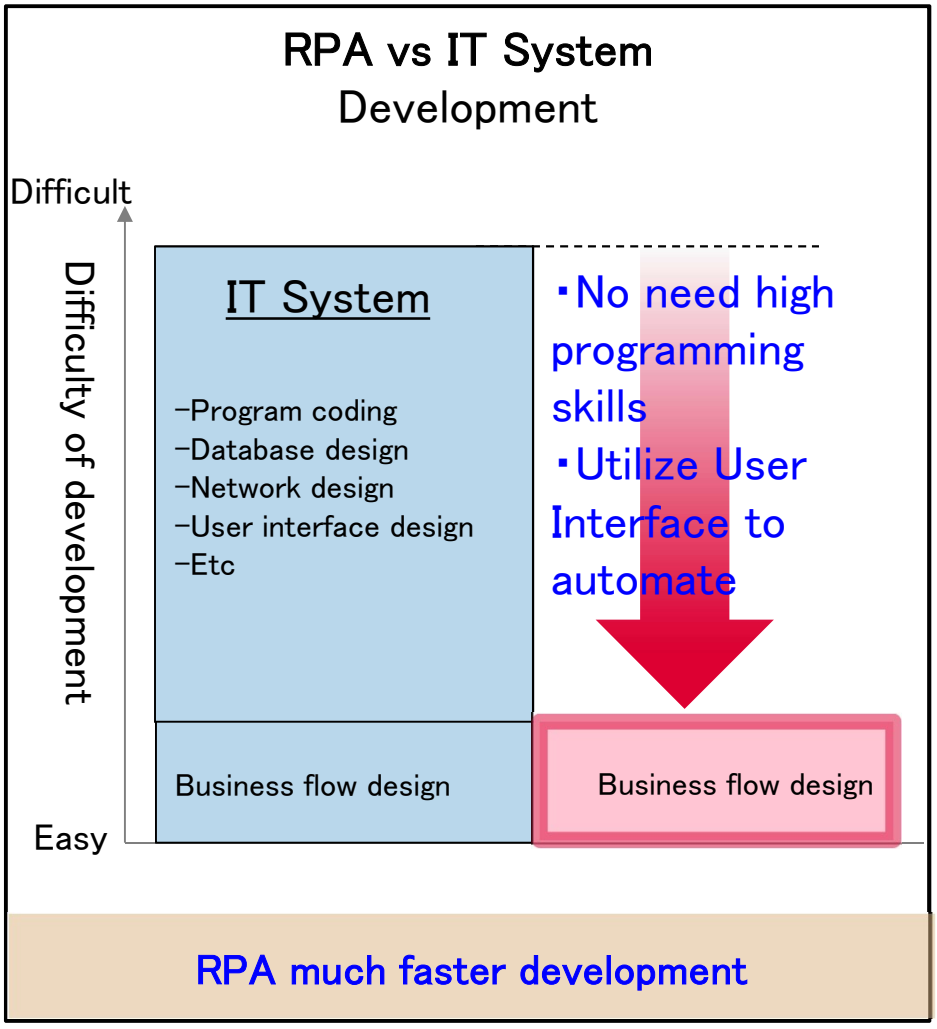


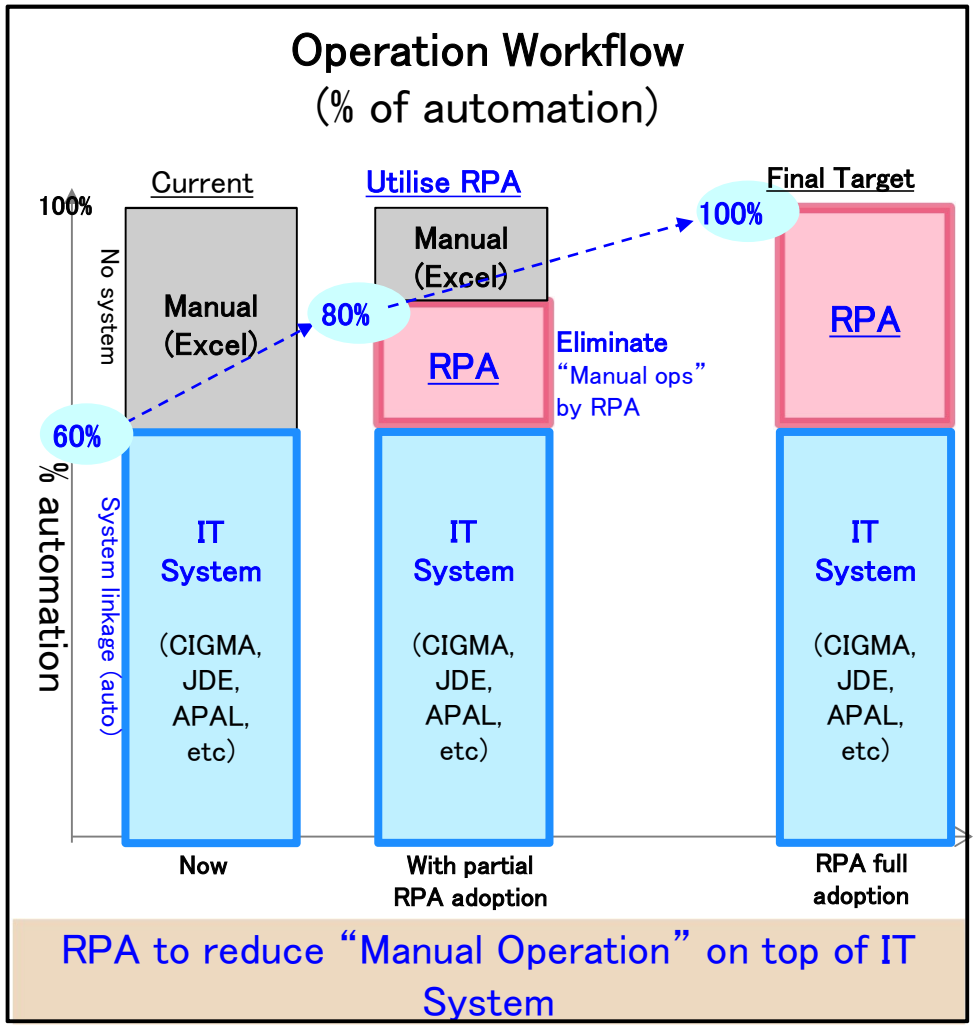
© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Why RPA ?

## Why RPA now ?

**The feature of RPA is "Immediate Effect"**




**Basic Concept of RPA : to replace manual operation**
(Not to change existing IT system)

# How to Implement RPA ?

To start RPA Project, as a company we need to plan carefully & consider few important things such as: which process & department as the starting point, which tasks are suitable, etc.

## Facts from Industry Experts

It's true that RPA is relatively easy to use because of the interactive workflows and drag-drop capabilities, however if you rush creating many robots to automate processes, the outcome can easily be a chaos and failure

## RIPI Implementation Strategy

1. Standardize RPA software that will enable exchange robot files and knowledge
2. Start from brainstorming lead by RIPI Leaders, the goal is to unleash creativity and ingenuity survey across sections and departments to find potential of RPA utilization
3. Establish RPA project team consist of Leader, RPA developer and Expert/ PIC from each dept
4. Calculate and estimate potential manhours (MH) saving, expected impact and craft KPI
5. Focus on **Low Hanging Fruit** and **Quick Wins** Project 
6. Utilize Regional Standard Robot (Standardization*) and Share Know-how among members https://globaldenso.sharepoint.com/sites/AP000062/001/Com/
7. HR development, level up members RPA skills and promote Citizen developers (by training)

**To enjoy RPA benefits, DIAT decided UiPath as Asia standard software**

# Introduction to UiPath

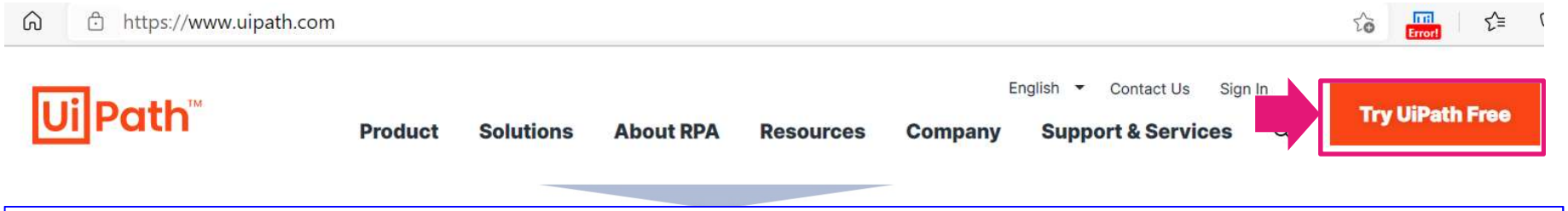
## <Preparation your PC for RPA>

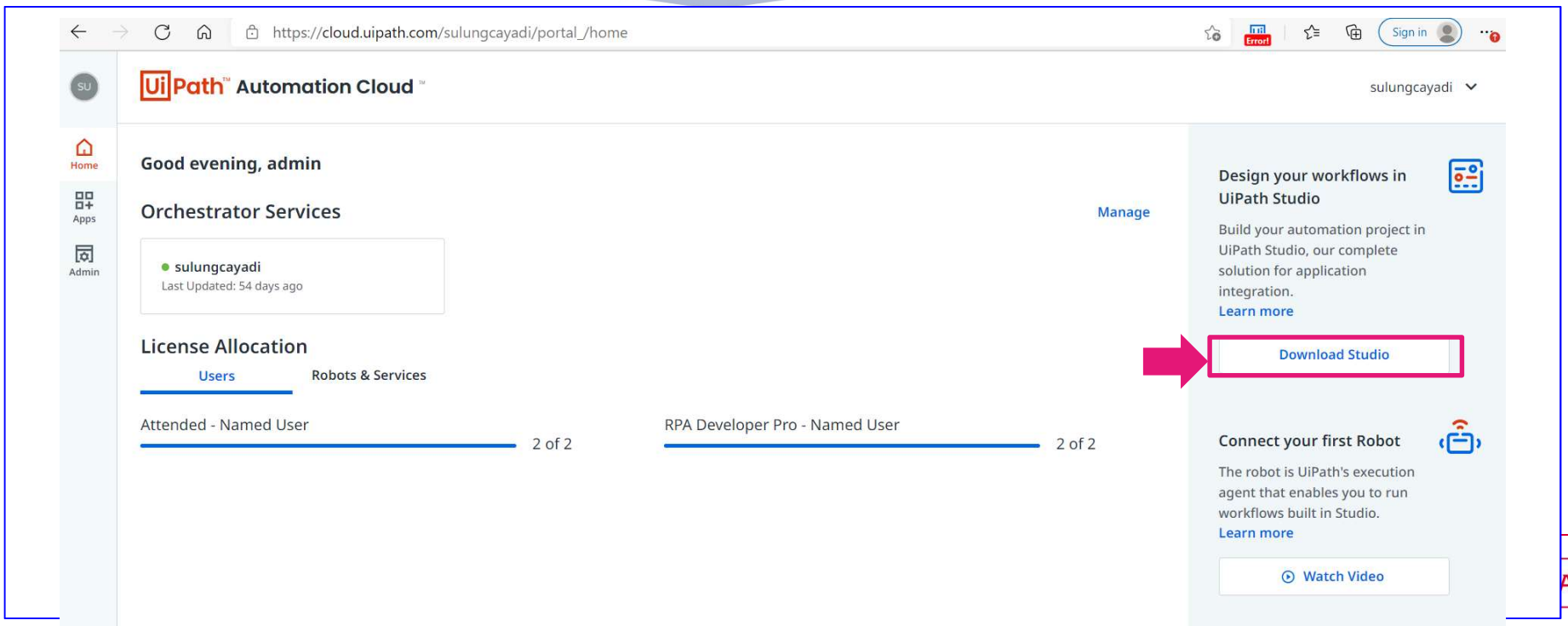
1.Register email address into UiPath

2.Install program UiPath trial

How to get UiPath Software

After you register your email and login into UiPath site, it will allow you to download the latest installer of UiPath Studio and related package



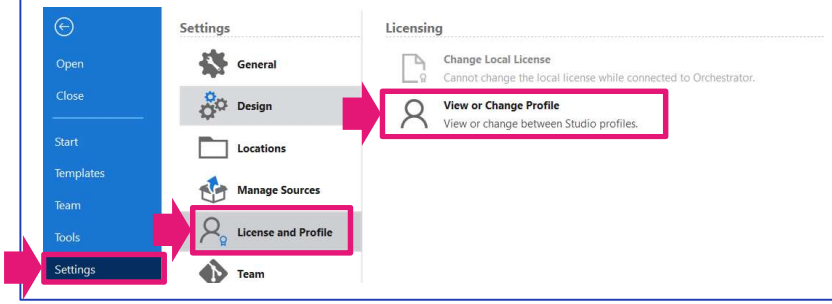



# Introduction to UiPath

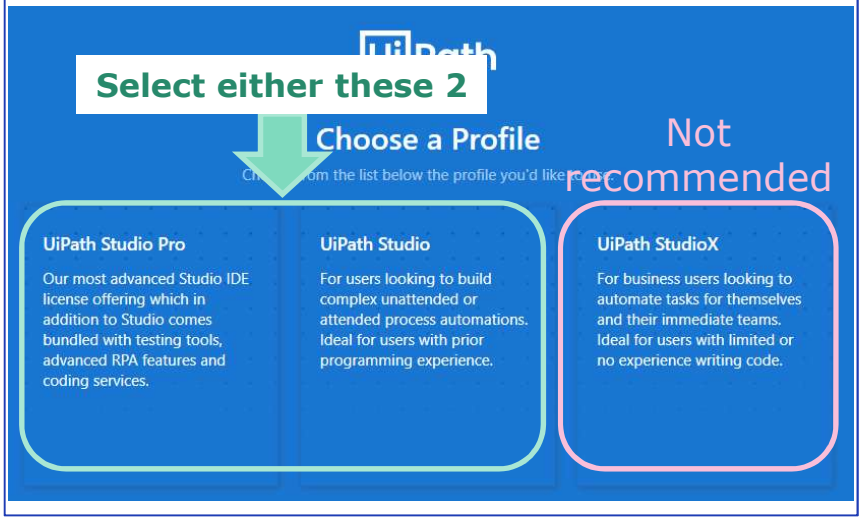


During installation process, please ensure you install Studio or Studio Pro (Not Studio X)

If you have accidentally install Studio X
You can switch profile as show below

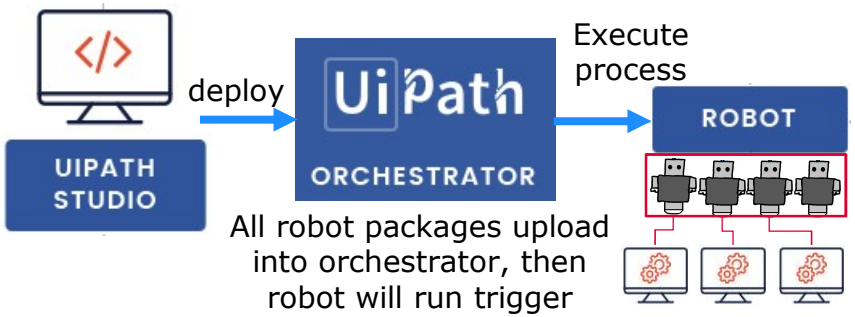



Then it will pop up the window as below



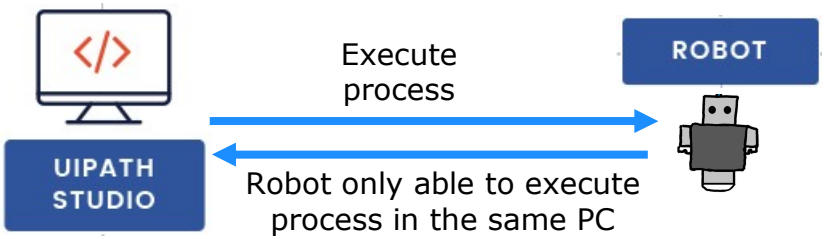

We shall use this Ecosystem to start RPA journey

## Common Ecosystem (Large Scale)




All robot packages upload into orchestrator, then robot will run trigger from orchestrator

## Development & Small Scale Implementation (PoC)

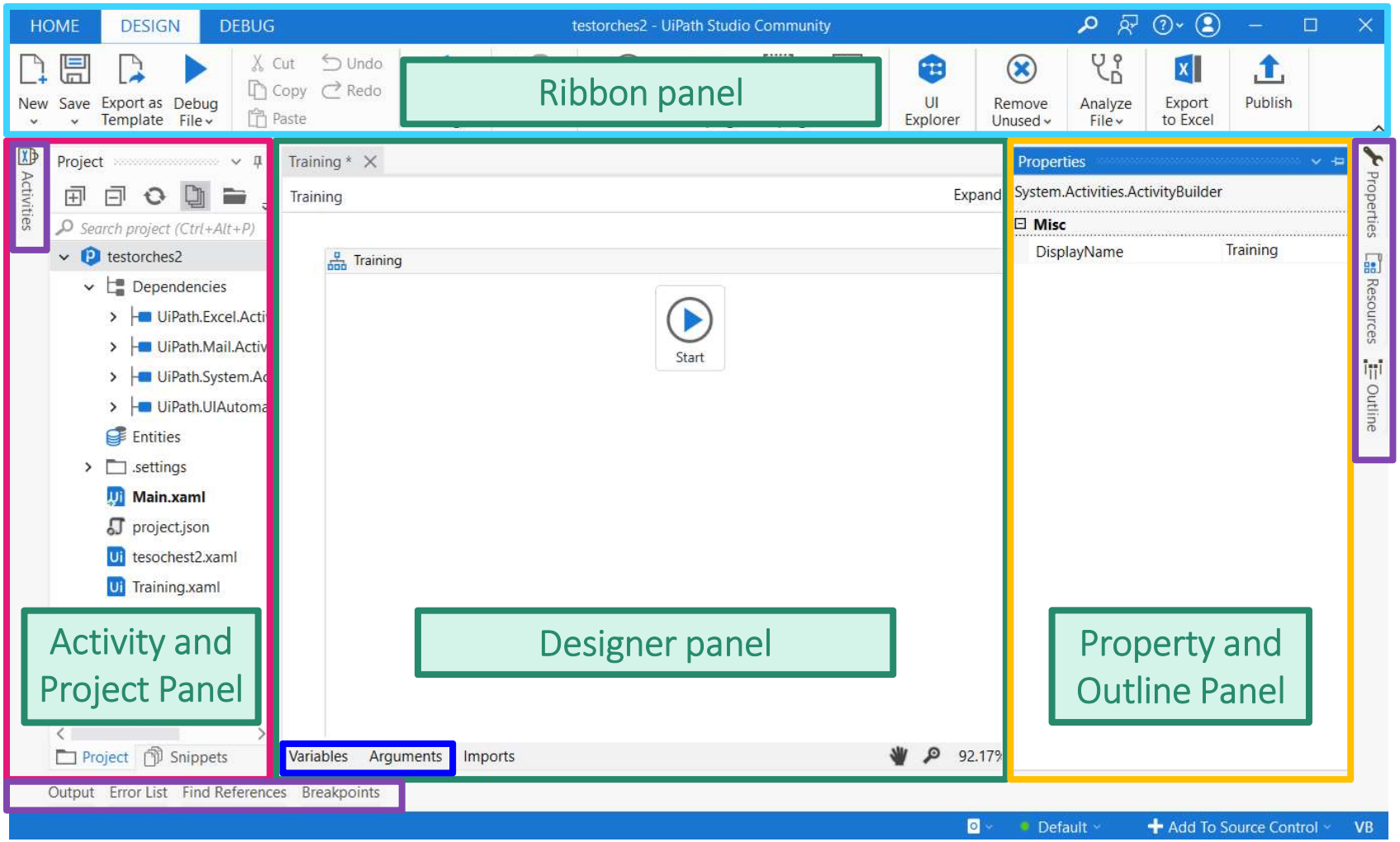



Robot only able to execute process in the same PC (where Studio is installed)


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Introduction to UiPath

UiPath Studio layout and main screen to start design your first Robot




1. Variables panel is a table where you can find all declared variables
2. Arguments contains the variable (arguments) that passed from other workflow

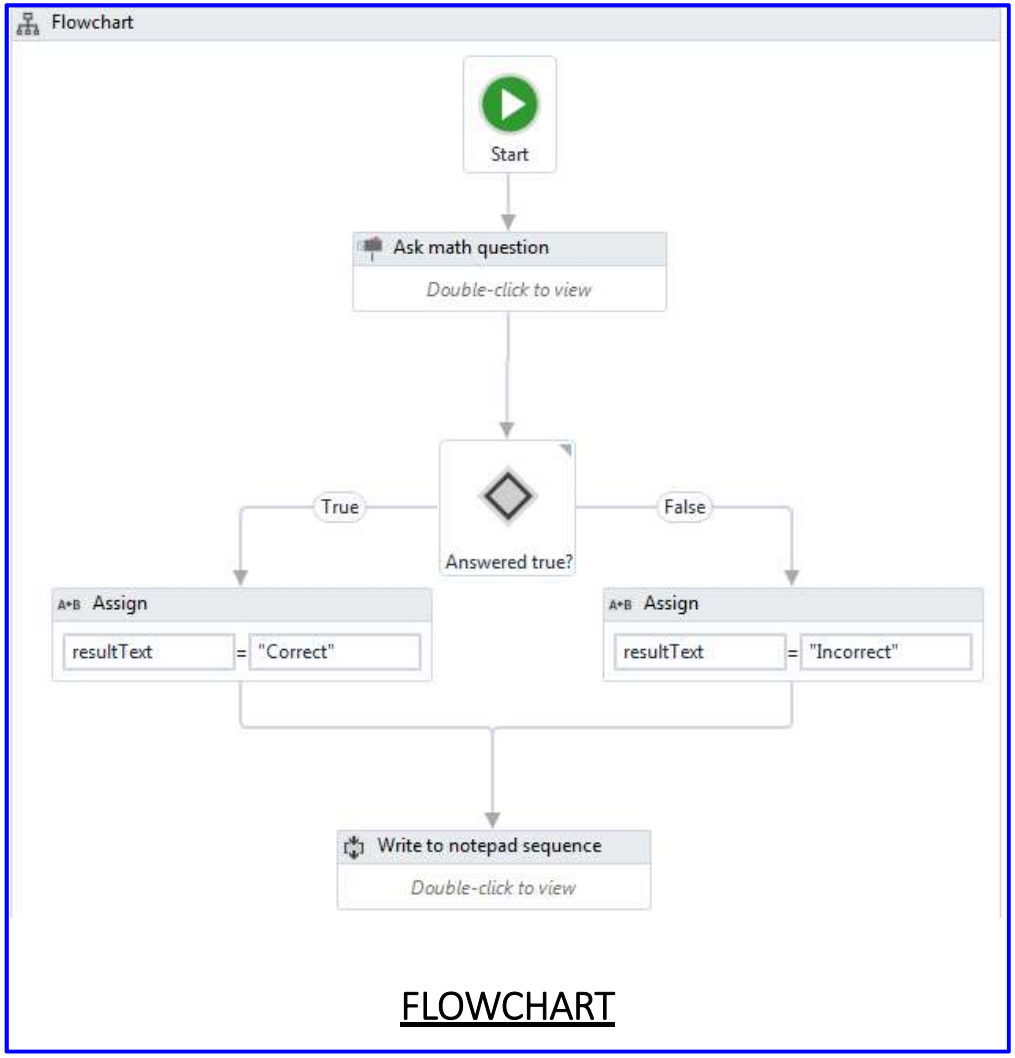
https://docs.uipath.com/studio/docs/the-user-interface

Please take note of all these tabs location


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Introduction to UiPath

## Flowchart and Sequence



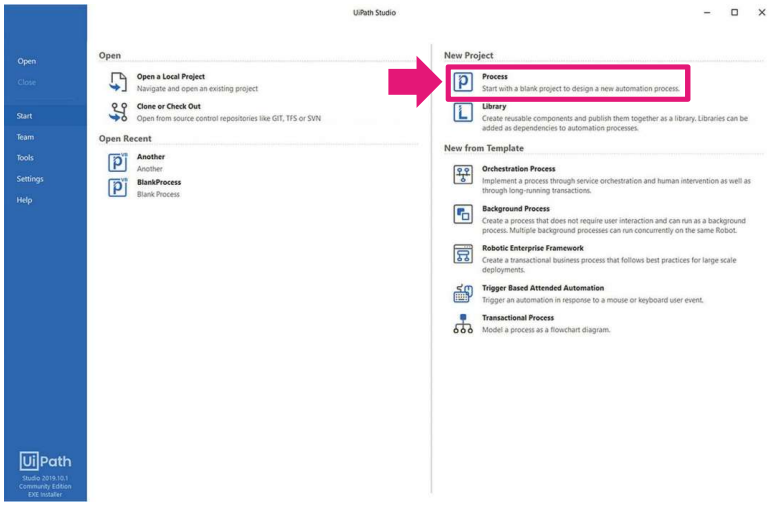

FLOWCHART

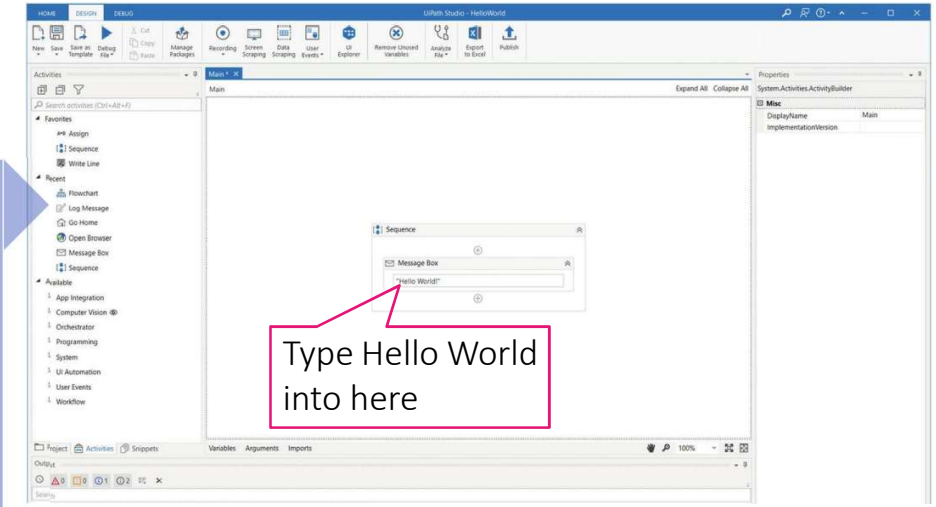

SEQUENCE

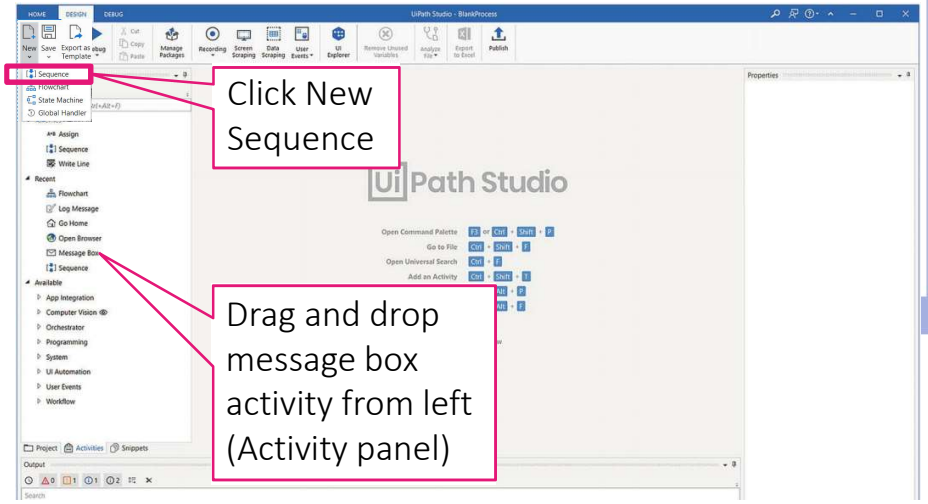
It is recommended to use **Flowchart** for Complex workflow and to use **Sequence** only for Simple workflow

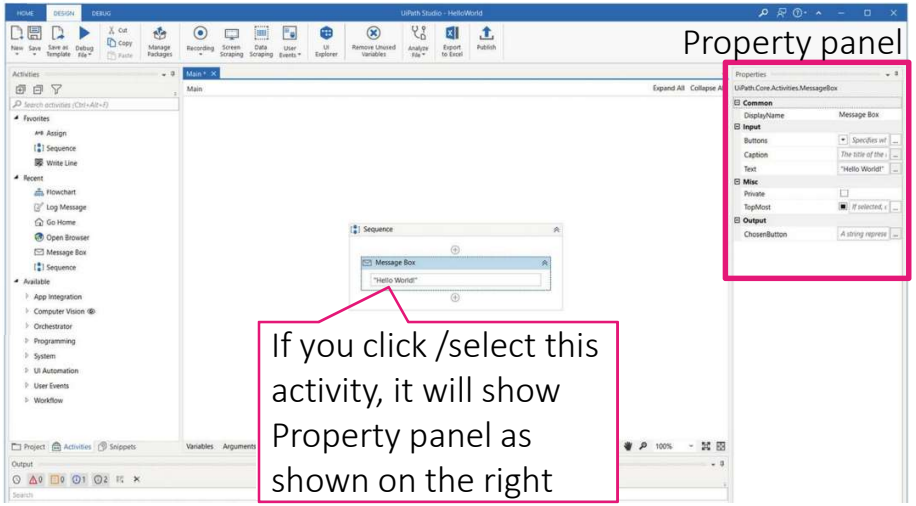
# Introduction to UiPath

Brief explanation on how easy to create workflow and build your very first robot

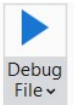



Please click this button to run your robot





© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Build your First Robot (Practice Session)

Now let's practice making your first robot for your start RPA journey

## Requirement

- Show "Hello World"

## Activities

- ❑ Flowchart/Sequence
- ❑ Message Box



© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Understand Variable and Data Type

## Variable types:

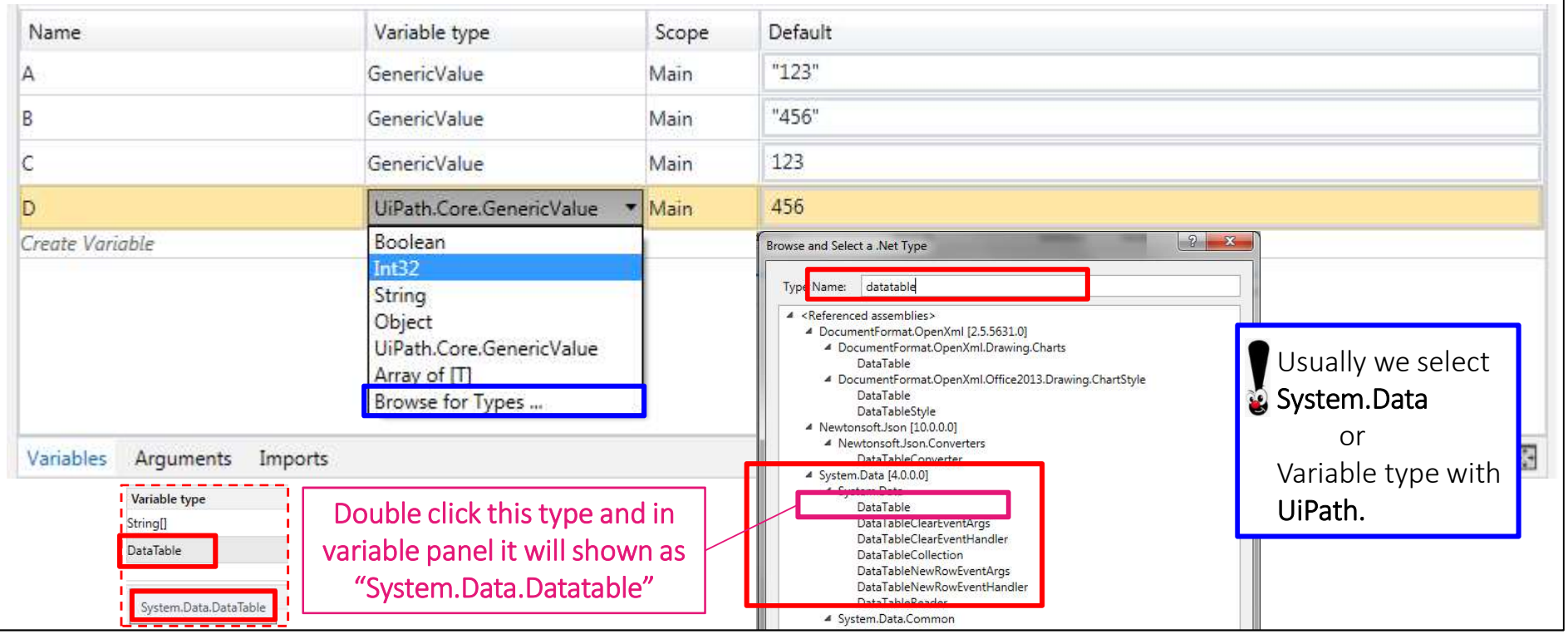
Number | String | Generic Value | Boolean | Array (String) | Datatable | … others

| Type | Description | Application | Example |
|---|---|---|---|
| Number / Int32 | Variable to store whole numbers, can be utilized in calculation/ equation | Age, Number of days, normal number | -2,-1,0,1,2, …12, 44120(date converted as number) |
| String | Must be start and end with double quote (“”)<br>Any text or number recognized as string | Text value such as UserName, URL, Email body/ content | “Hello!”<br>“Good morning”<br>“sulung.cayadi.a6k@ap.denso.com” |
| Generic Value | Variable to store any kind of data, including text, numbers, dates, etc | Any of data | Any of data |
| Boolean | Has only 2 possible value (True or False) | Helps with decision making | True, False |
| Array (String) | Collection of same type variable (String) | Depend collection type (example: String) | {“firstdata”,”seconddata”,”thirddata”} |
| Datatable | Variable to store data in table format (2 dimension with rows & columns) | Extract data from a table or read Excel/CSV file and keep it in variable | Name \| Age<br>Bob \| 40 |


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Understand Variable and Data Type

To find other variable type, we can browse it from variable panel as shown below (example to select datatable)




## Data types:

| SCALAR | COLLECTIONS | TABLES | GENERIC VALUE (UiPath) |
|---|---|---|---|
| Character, Booleans, Numbers, DateTimes | Arrays, Lists, Queue, Strings Dictionaries (data from Orchestrator) | Data of 2 dimension rows, columns | Strings, Booleans, Numbers, DateTimes |

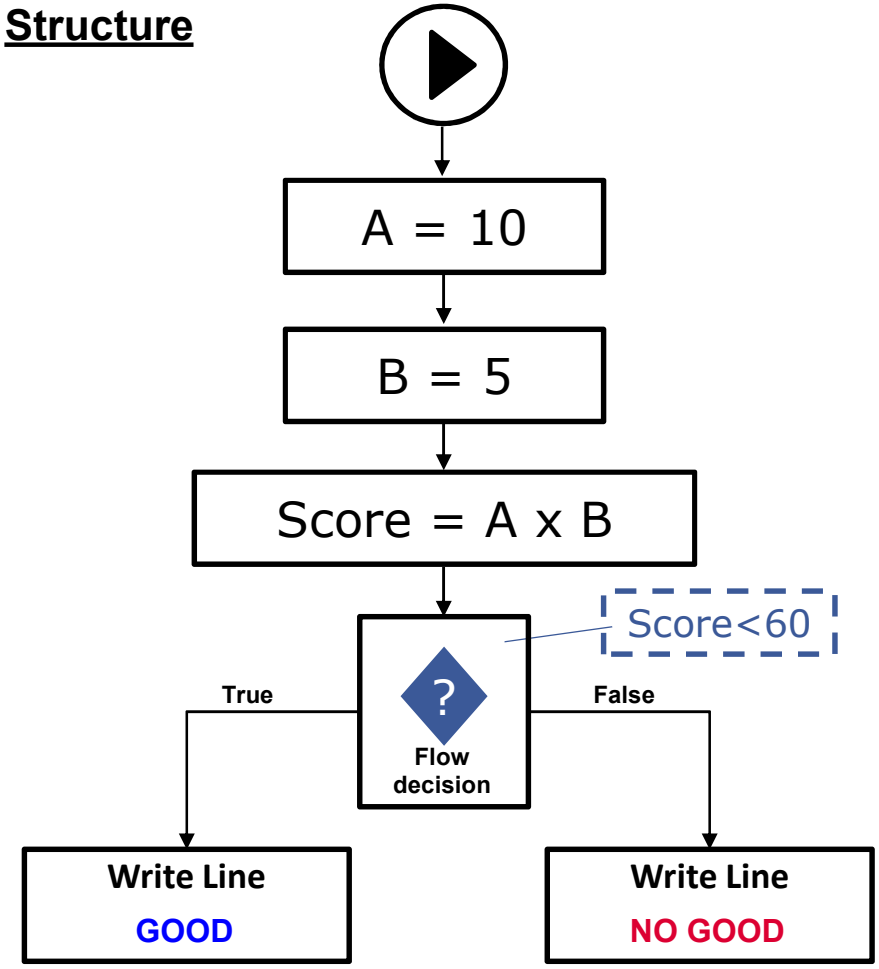

© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Logical function: If statement & Loops

**If statement**

It is a decision flow to decide which set of actions to be executed when condition is True or False

**Structure**




In business scenario, we can set various condition to decide the next activities.

Please observe sample on the left,

if condition is met, robot will execute left activity and show : "GOOD",

if not then robot will execute right activity and show "NO GOOD"

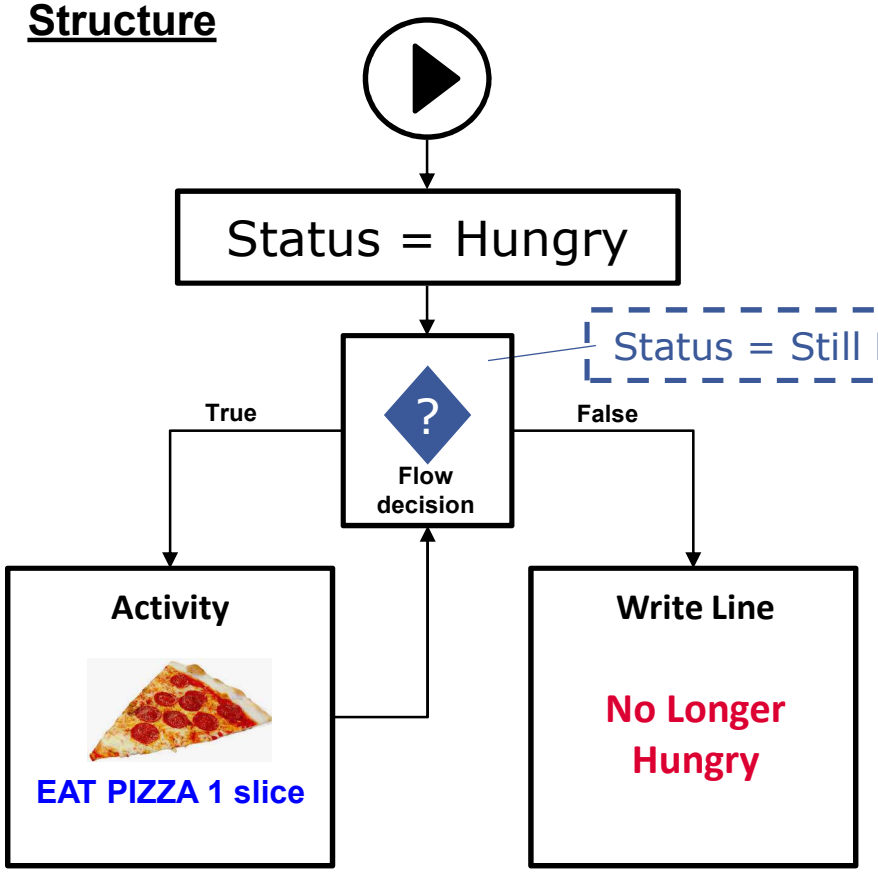

© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Logical function: If statement & Loops

**Loops**

It is a workflow to repeat the same set of actions until specific condition is met or while specific condition is true

**Structure**




Loops shown in flowchart shown a combination of If with closing loop and only exit when condition is met

Please be careful with infinite loop where robot will continue run infinitely


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Introduction to Selector

## What is Selector ?

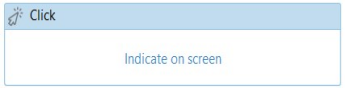
Selector is a string of characters used to identify specific elements on the screen.
It is represent an essential part of Ui automation, understanding on how to generate reliable selector is the key for a robust and stable robot operation

## How to build a selector ?

We can utilize Ui Explorer to identify a selector or simply utilize “indicate on screen” in each of the activity (such as mouse click or find element)

## Example

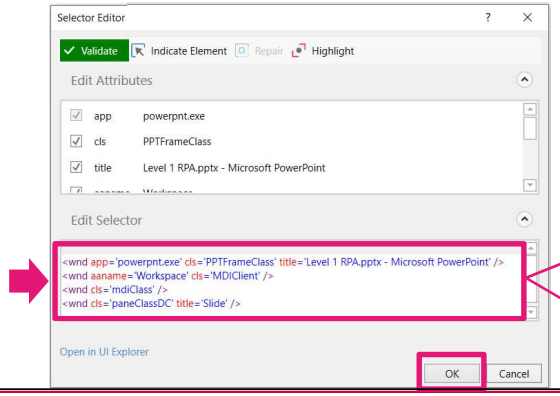
1. To get a selector from this powerpoint,





This value is empty

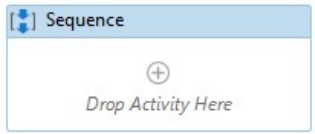
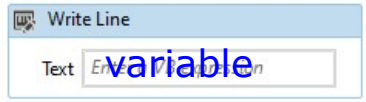
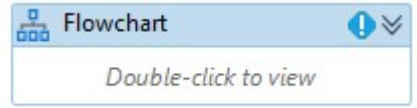
2. After click Indicate on screen and select this powerpoint window, it will give the selector value as shown,




This selector automatically identified by Ui Explorer


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

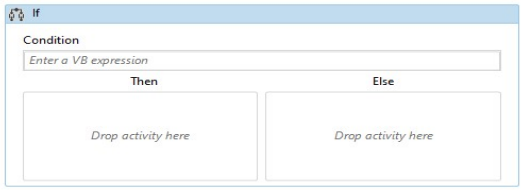
# Common Useful Activities in UiPath

| | |
|---|---|
| 1. Assign<br>  | To assign a value from process to a variable, can be String, Integer, etc |
| 2. Sequence<br>  | Main workflow design and style, it meant for simple flow (less complex) |
| 3. Write Line<br>  | Activity to show the value of variable into robot Output in studio (usually use for checking purpose) |
| 4. Flowchart<br>  | Main workflow design and style, useful for complex operation, the most recommended workflow for better visualization |
| 5. Click<br>  | Mouse activity to click element/ button that exist in windows screen/ running application |


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Common Useful Activities in UiPath

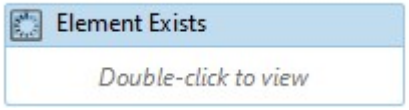
## 6. If …. Then …. Else ….





Decision making activity to give value True or False
*Flow decision only exist in Flowchart style workflow

## 7. Element Exists

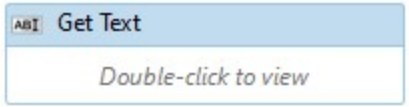



To check if certain element is exist from selector / variable, output from this activity is True or False

## 8. Type Into

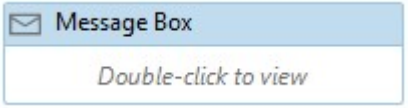

To type a string variable into place holder element in the screen, usually use for input User ID and Password or to type the file name in to file-saving pop up box

## 9. Get Text




To get a string value or text from element in window and assign it into string variable

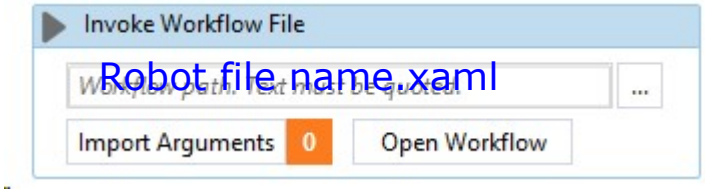
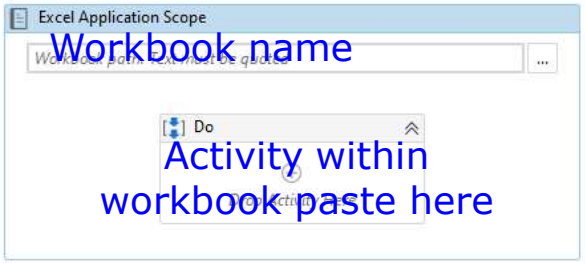
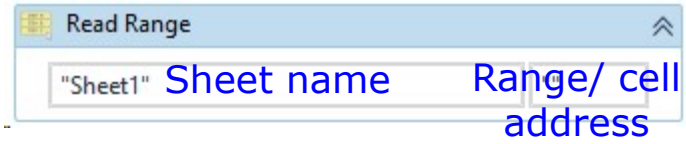
## 10. Message




To show pop up box and display the string variable assign to it


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

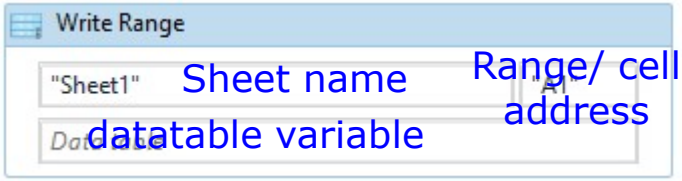
# Common Useful Activities in UiPath

| | |
|---|---|
| 11. Delay<br>  | To put a delay before moving to next process to delay 5s we type 00:00:05 into this box |
| 12. Invoke Workflow<br>  | To run another workflow (sub robot) before proceed next step. We can pass Arguments/ variable into the sub robot and get the output result by managing In/Out variable |
| 13. Excel Application Scope<br>  | Excel application scope will allow robot to open the Excel then start to do activities within this workbook |
| 14. Read Range<br>  | This activity should be inside the Excel Apps Scope, to read the range or 1 cell address and assign as a datatable |


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

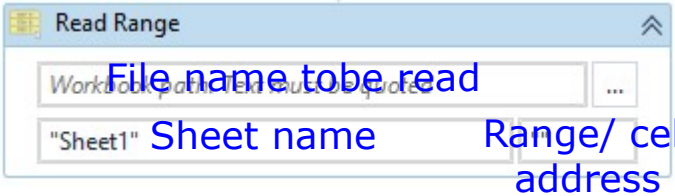
# Common Useful Activities in UiPath

15. Write Range



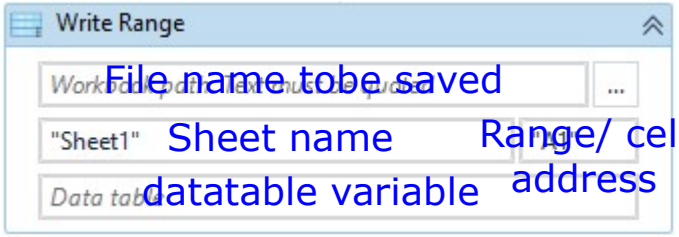

This activity should be inside the Excel Apps Scope, to write a range from source variable datatable

16. Read Range File




This activity to read the range or 1 cell address and assign as a datatable
It does not need to be inside Excel Apps Scope, robot will read excel without opening it

17. Write Range File




This activity to write the range or 1 cell address from datatable variable
It does not need to be inside Excel Apps Scope, robot will write excel without opening it

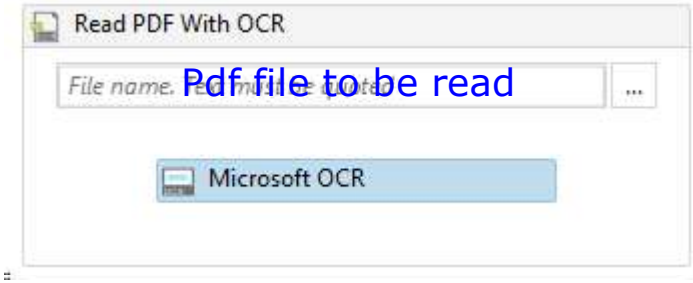
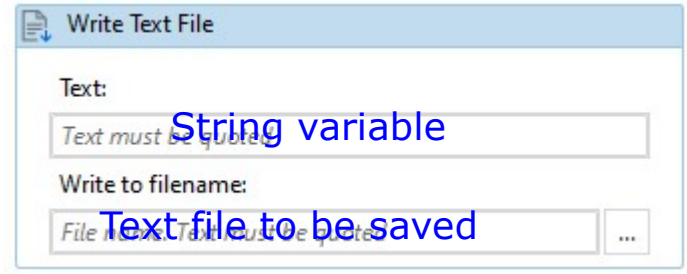
18. Read PDF Text


Activity to Read PDF file and convert it to string variable, please ensure UiPath.PDF is installed (from manage packages screen)



© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

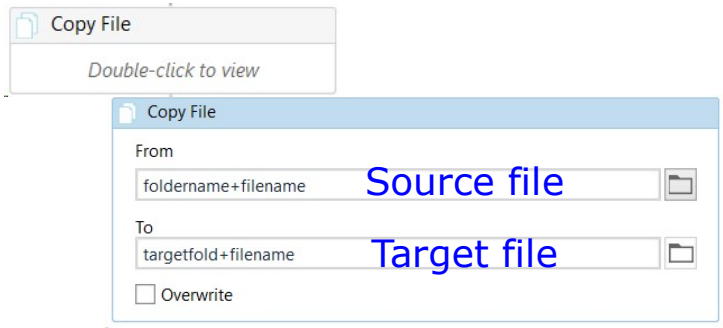
# Common Useful Activities in UiPath

| | |
|---|---|
| 19. Read PDF With OCR<br>  | Read PDF file that unreadable with read pdf activity. This activity utilize default OCR function, there are 2 available OCR engine: Microsoft OCR and Tesseract (google) OCR. The result from this activity is a string variable |
| 20. Write Text File<br>  | Activity to write the string result (usually from PDF read activity) into txt file.<br>This activity output is a txt file |
| 21. Path Exists<br>  | Activity to check a folder or a file is exist or not and return output in Boolean (True/False) variable |
| 22. Create Folder<br>  | Activity to create a folder by providing the directory name in string variable to be created,<br>Example: "C:\Users\di00139\Documents\Training\" |


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Common Useful Activities in UiPath

## 23. Copy File

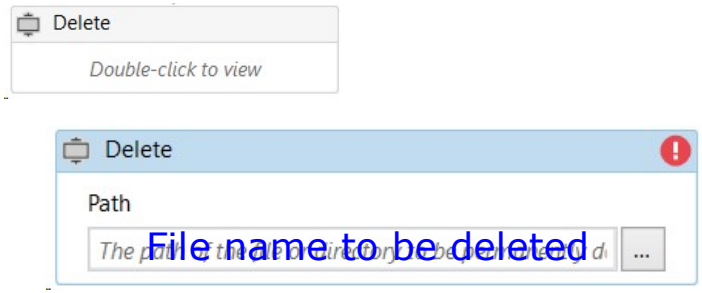



This activity to copy a file FROM and TO the value should be in string variable for both cells, please provide a file full path,

full path = folder name + file name

If you wish robot to overwrite if it found file already exist, you can tick on Overwrite box

## 24. Delete File



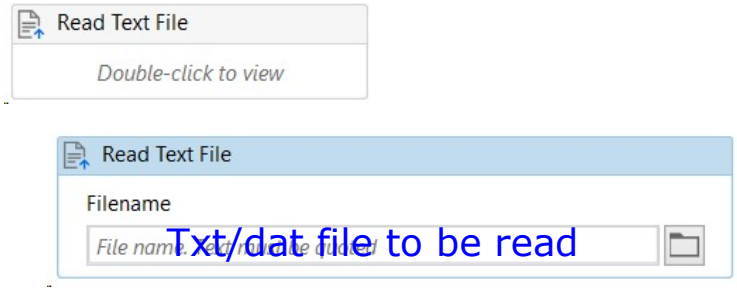

This activity to delete a file, the value should be in string variable, please provide a file full path,

full path = folder name + file name

***Important information:**

file deleted by this activity won't appear at recycle bin, please use this activity carefully

## 25. Read Text File




This activity to read a text file, the then return value as string variable.
Please provide a file full path,

full path = folder name + file name


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Asia Regional Robot Naming Standardization

## Basic Policy

To ensure each Robot is performed efficiently, quick implementation and maintenance/ support can be done remotely by ASIA RPA team, all Robots operate in Live environments should be registered and approved by RIPI/ GC RPA Leader. Each process will have Robot Number and Robot Structure

## Robot Listing and Naming Convention

### LIVE Robot Number

Robot Number : ① ② ③ ④ ⑤ ⑥ XX_XX_001X00_xxx

*Definition and Explanation :*

| | |
|---|---|
| ① | = OGC Global code (DI, XT, JS, etc) |
| ② | = Function Code (AC, FA, CM, etc) |
| ③ | = Robot Unique Number 3 digit (001-999) |
| ④ | = Main Robot (0), Sub Robot (A-Z) |
| ⑤ | = Revision number of robot (00-99) |
| ⑥ | = SimpleNameWithoutSpace(max 30 chr) |

### Prototype Robot Number

XX_XX_001X00_001_xxx
XX_XX_001X00_002_xxx
XX_XX_001X00_003_xxx

001
002
003
Prototype sequence number

The Last sequence Prototype Robot Number=LIVE Robot Number


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Asia Regional Robot Naming Standardization

## Example of DIAS Robot Number

**LIVE Robot Number**

Robot No : DI_AC_001000_DailyPurchase

*Legend and explanation:*

| | | |
|---|---|---|
| DI | = | DIAS |
| AC | = | Accounts dept robot |
| 001 | = | Robot ID |
| 0 | = | Main Robot |
| 00 | = | First Registration |
| xxx | = | Robot Name (max 30 char) |

**Prototype Robot Number**

DI_AC_001000_001_xxx
DI_AC_001000_002_xxx
DI_AC_001000_003_xxx

001
002
003
Prototype sequence number

These 2 Robot No is having exactly the same detail workflows :

LIVE Robo : DI_AC_001000
Prototype : DI_AC_001000_003

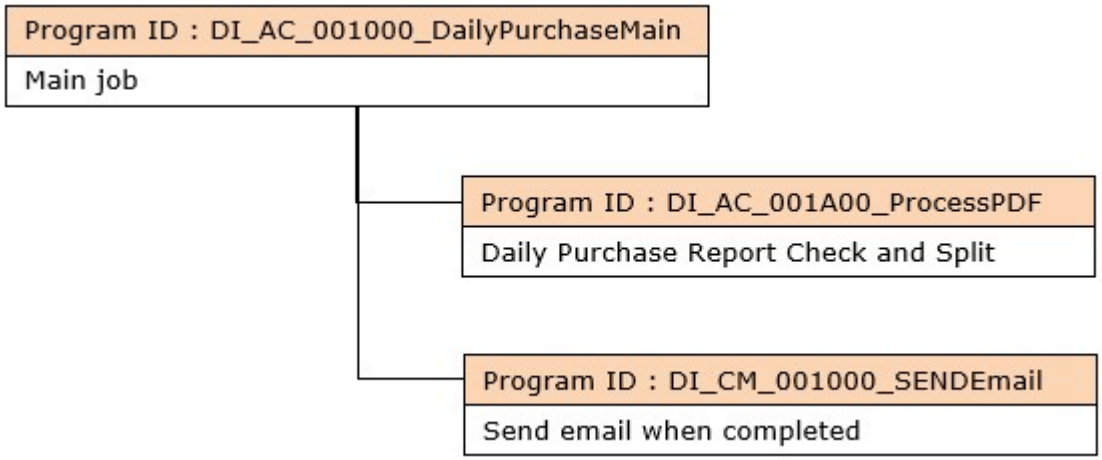
OGC manage their owned Prototype Robot Number


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Asia Regional Robot Naming Standardization

## Example of DIAS Robot Structure

Robot No : DI_AC_001000_DailyPurchaseMain





© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Practice Session and Q&A

## Practice

1. Please create a workflow by utilizing Flow Decision (if statement) for the following scenario:

A = 10 (utilize input box)
B = 5
C = A*B (utilize assign activity)
If C > 80 then show message box "Excellent"
If C <= 80 show "OK"

2. Please create a workflow to utilize Loop for the following scenario

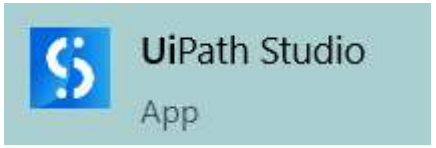
A = 0 (initial number)
B = 5
C = A+B (utilize assign activity)
If C < 10 then continue loop and add +1 to A
(use assign function A = A + 1)
Once C => 10 then exit while loop and show message box: process is completed, C = 10


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

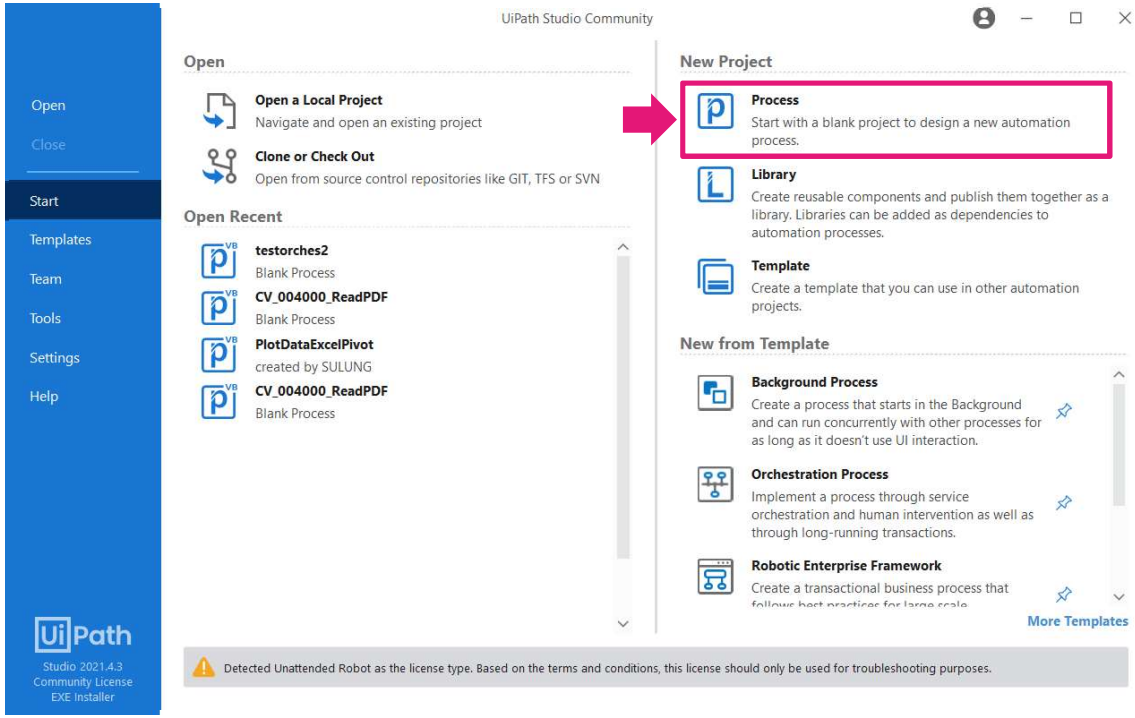
# Deep Dive Into UiPath RPA

Let’s start to build robot based on previous sample and understand how to design a robot process

Step 1 Start UiPath Studio


Step 2 After UiPath studio open, click close on pop up window then create New Process

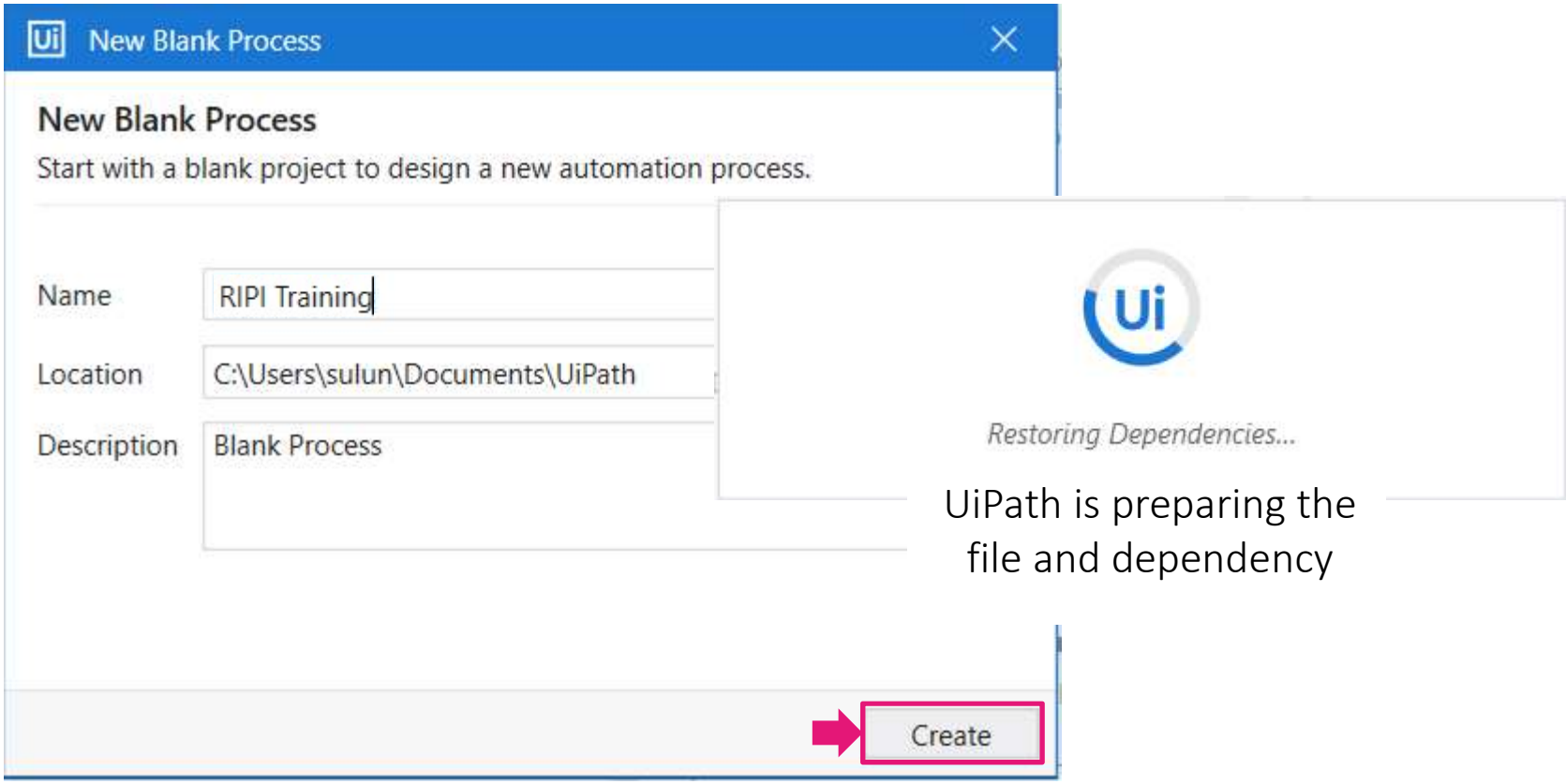




© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Deep Dive Into UiPath RPA

Step 3 Window pop-up appear, you can input any Name of this process, then click Create

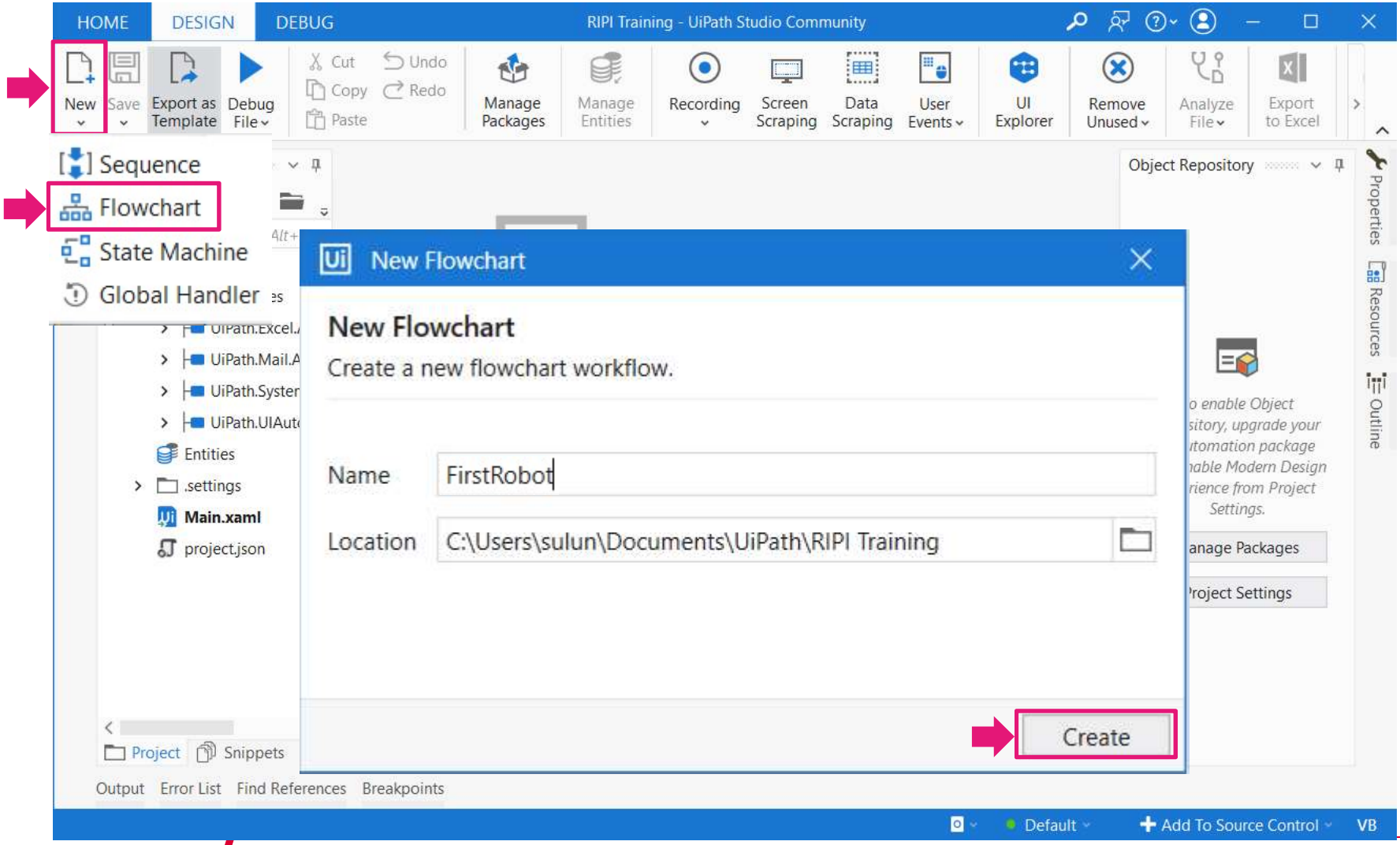




© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Deep Dive Into UiPath RPA

Step 4 After finished loading, it will show below screen and let's create New XAML file

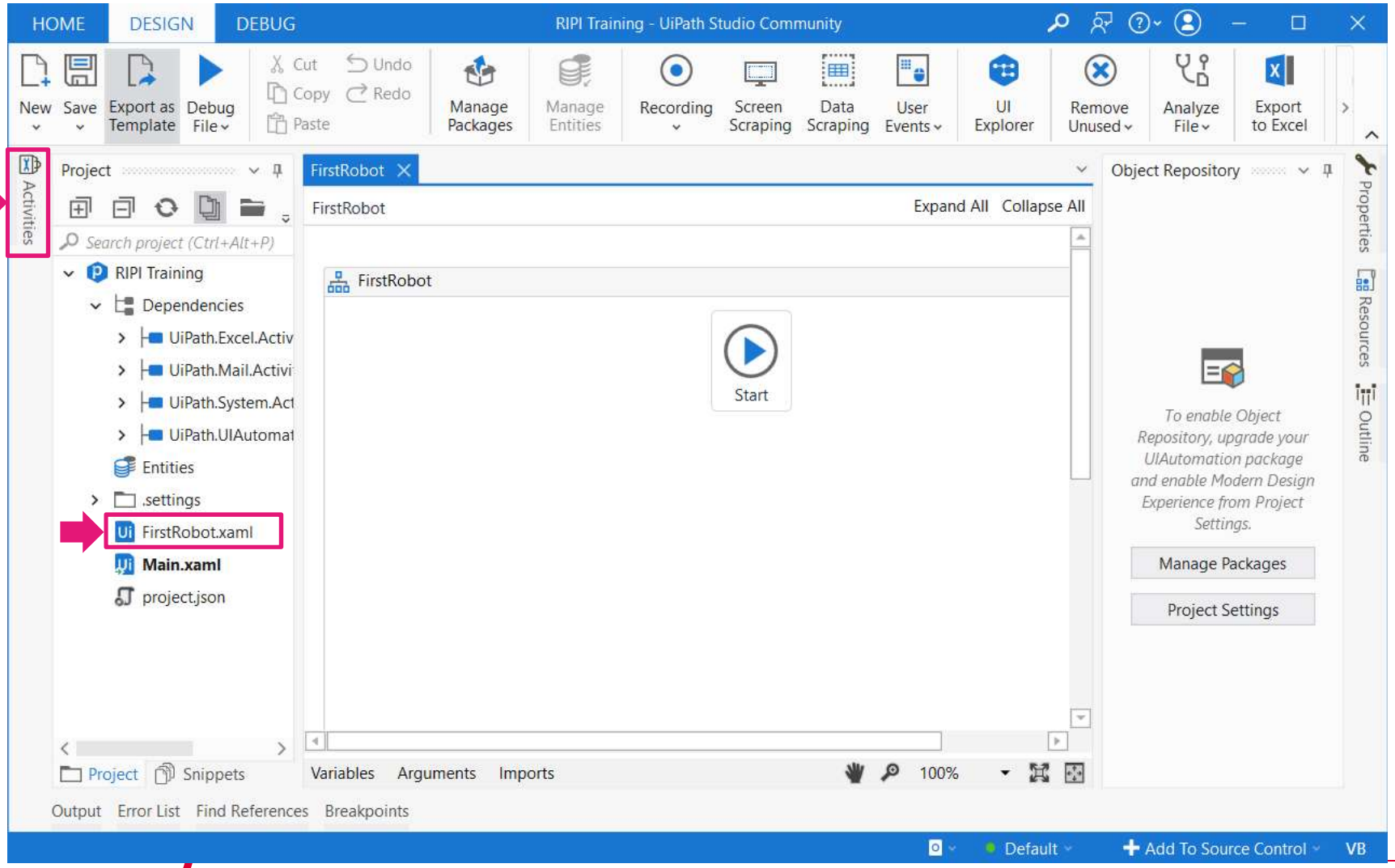




© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Deep Dive Into UiPath RPA

Step 5 Observe the current window, FirstRobot.xaml is created and then click Activity panel

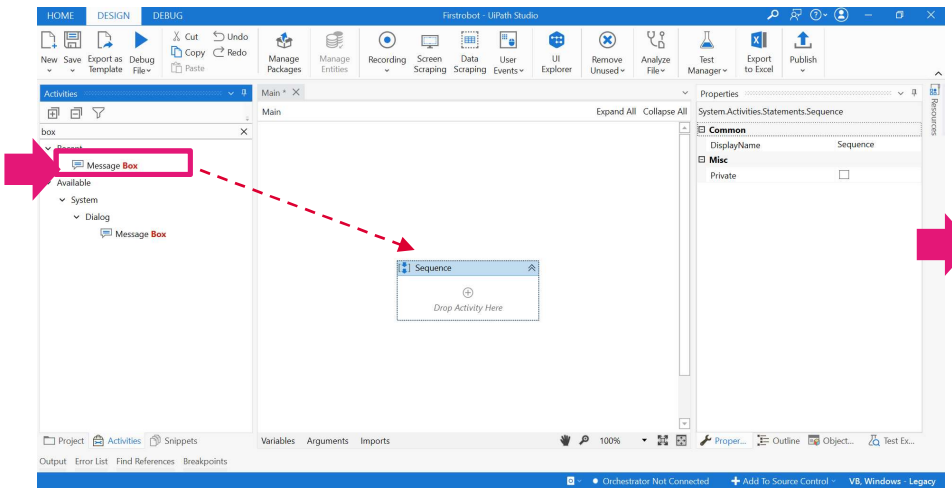


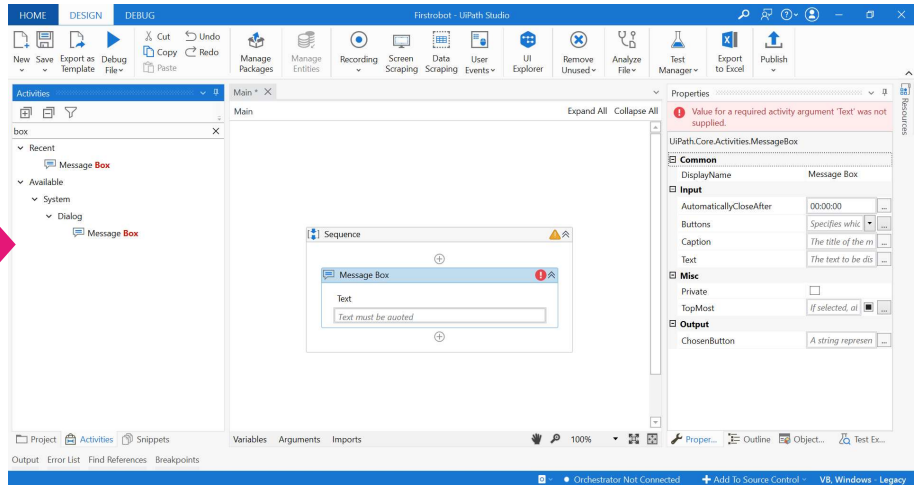


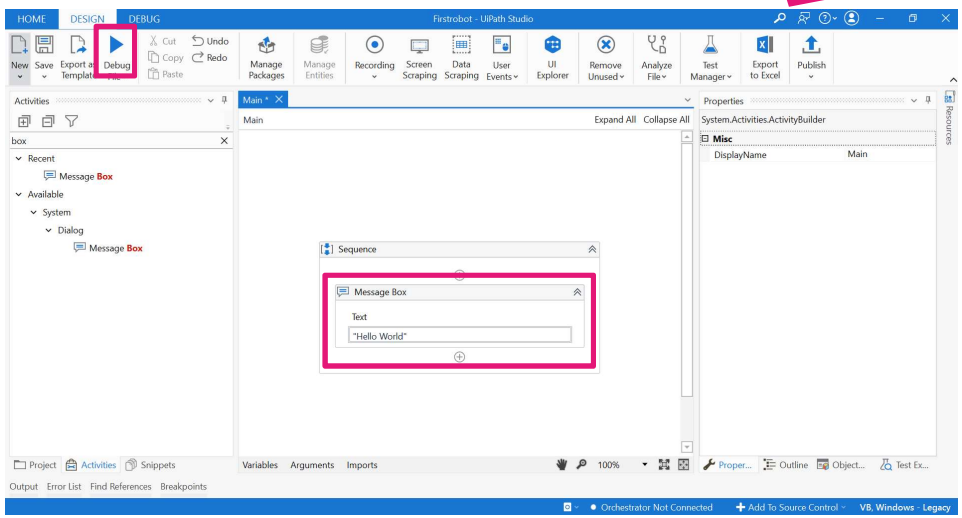
© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Deep Dive Into UiPath RPA

Step 6 At Activities panel, find **Message Box** then click after that DRAG and DROP into Designer panel







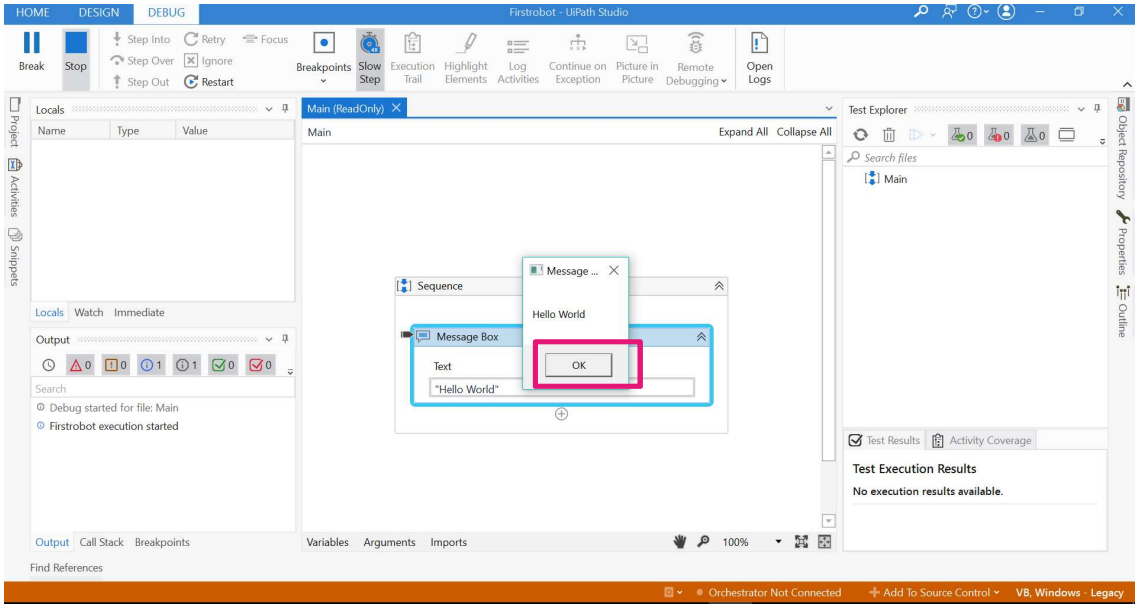


© DENSO CORPORATION All RightsReserved.

CONFIDENTIAL

# Deep Dive Into UiPath RPA

Step 7 At Activities panel, **Message Box** appears with Hello World. Click OK to close the **Message Box**.



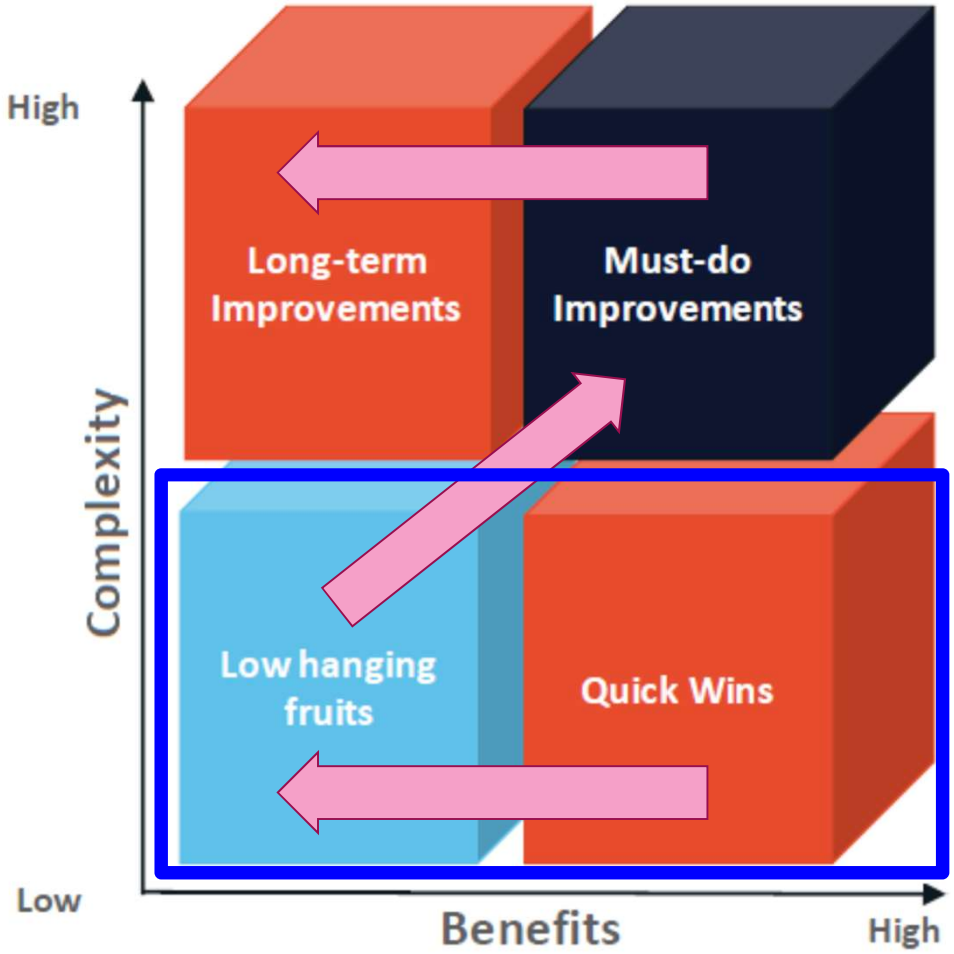



© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL


*LET'S DO QUIZ 5 MINS*


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL

# Appendix 1. Image of Selection Process for automation




The key of success of RPA implementation to start from Process that have quantifiable benefits such as

- Time saving
- Reduced error rate

The common path most of organization adopted:

1. Quick Wins
2. Low Hanging Fruits
3. Must-do improvements
4. Long-term improvements

Start from Easy & Less complex process is the key success


© DENSO CORPORATION All RightsReserved.
CONFIDENTIAL


DENSO
Crafting the Core