Requirements Specification for Assignment 2

1. **Install the KNIME tool on your personal computer**

   I have read the installation instruction from https://www.knime.com/downloads link and was able to successfully installed KNIME on my laptop.
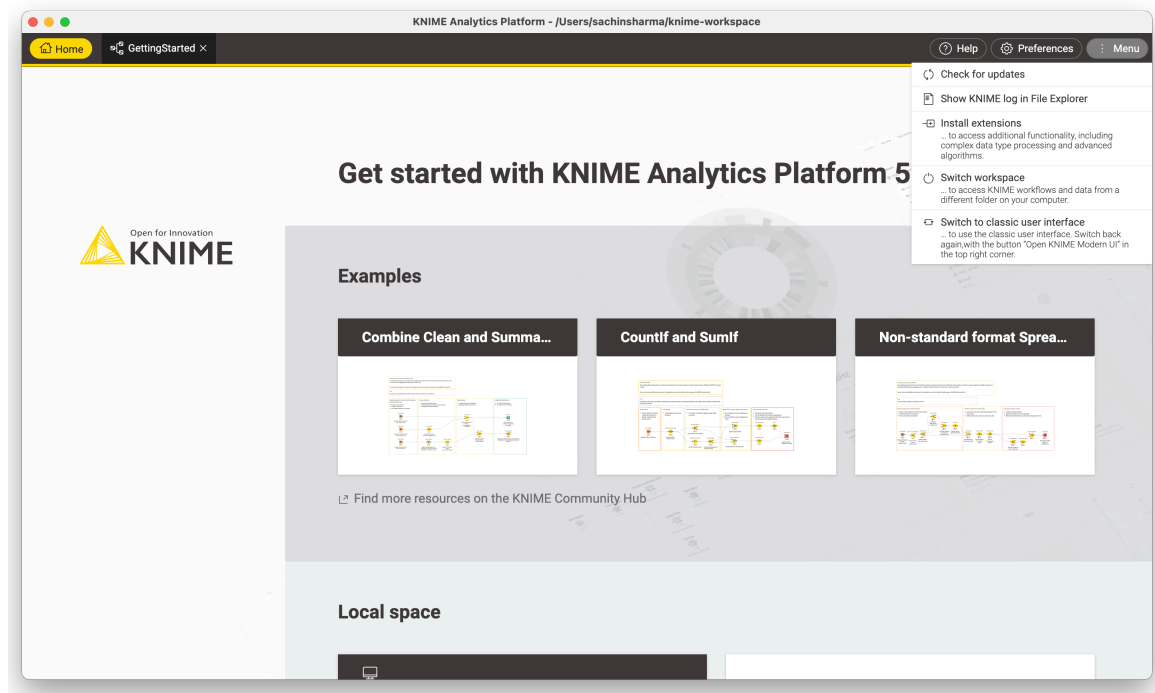   Attaching the below screenshot of KNIME(5.2.0) running on my machine.

Figure 1

2. **Read the Getting Started Guide.**

   I have read the getting started guide and created the sample workflow which is mentioned on the site. For the workflow we have downloaded the rooms xlsx dataset which contains data about Kitchen, Living Room and Sleeping room. We performed basic operation of reading data, filtering data, combining different data sheet and visualizing the data with the help of Charts.

   Attaching the below screenshot of workflow which I created and ran on my local machine.
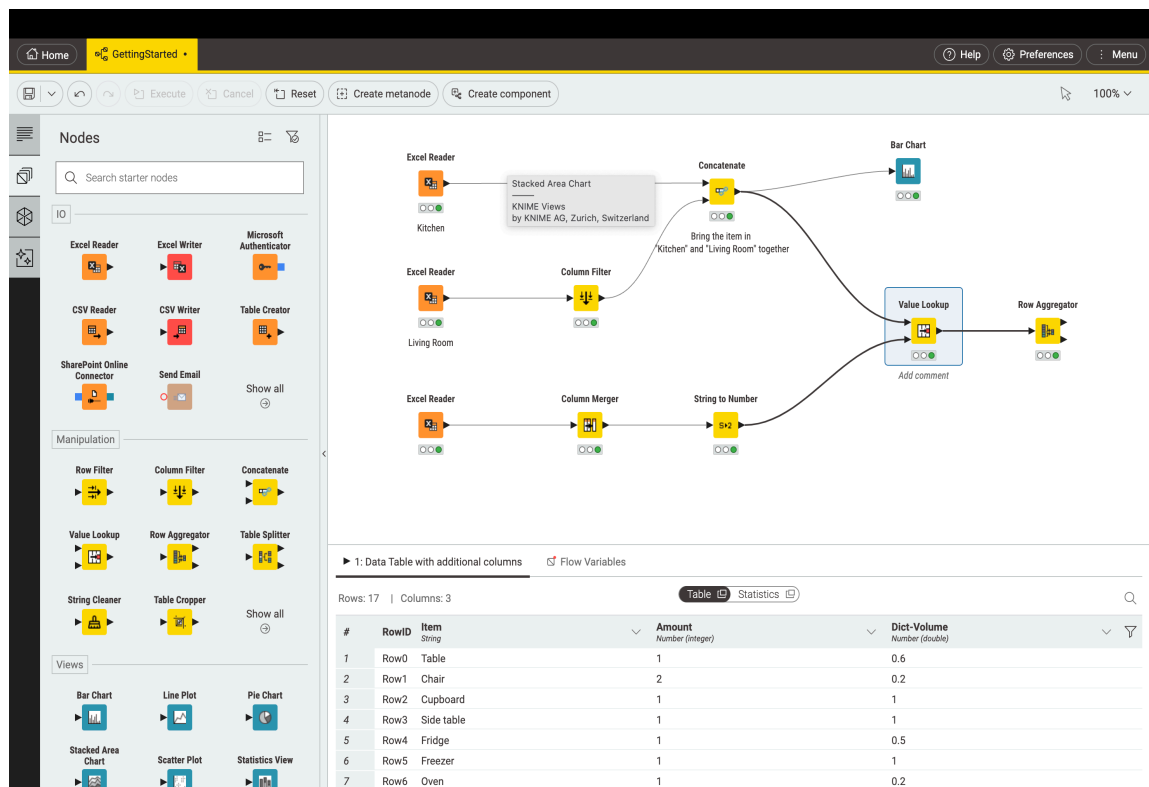
Figure 2

3. **Read the Quick Start Guide.**

I have read the Quick Start Guide and created the example workflow which was mentioned on it. This is a simple workflow which is using sales data of products mapped with countries. We filtered the data based on column and row and then create charts to visualize the sales data.

Attaching the below screenshot of workflow which I created and ran on my local machine.
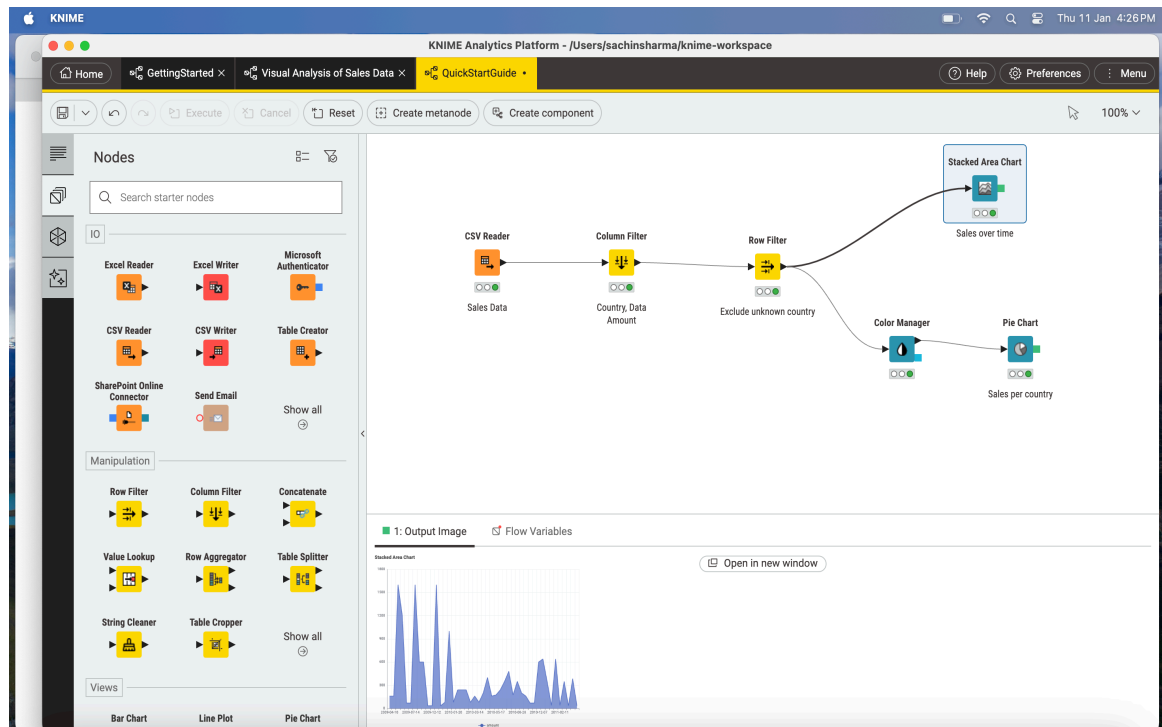
Figure 3

4. **Read the** <u>**KNIME Workbench Guide.**</u>

I have read the KNIME Workbench Guide from the provided link in assignment point 4. It is a comprehensive documentation that describes the first steps to take after starting KNIME Analytics Platform and points you to the resources available in the KNIME Workbench for building workflows.

The guide explains how to customize the workbench, configure KNIME Analytics Platform to best suit specific needs, and finally explains data tables. It also describes the first steps after starting KNIME Analytics Platform and all of the resources you have on the KNIME Workbench to build your workflows.

5. **Execute and inspect the Visual Analysis of Sales Data workflow in KNIME/Example Workflows on your personal computer.**

Executed and Inspected the Sales Data Workflow from the Examples provided . Attaching the below screenshot of workflow which I executed and ran on my local machine.
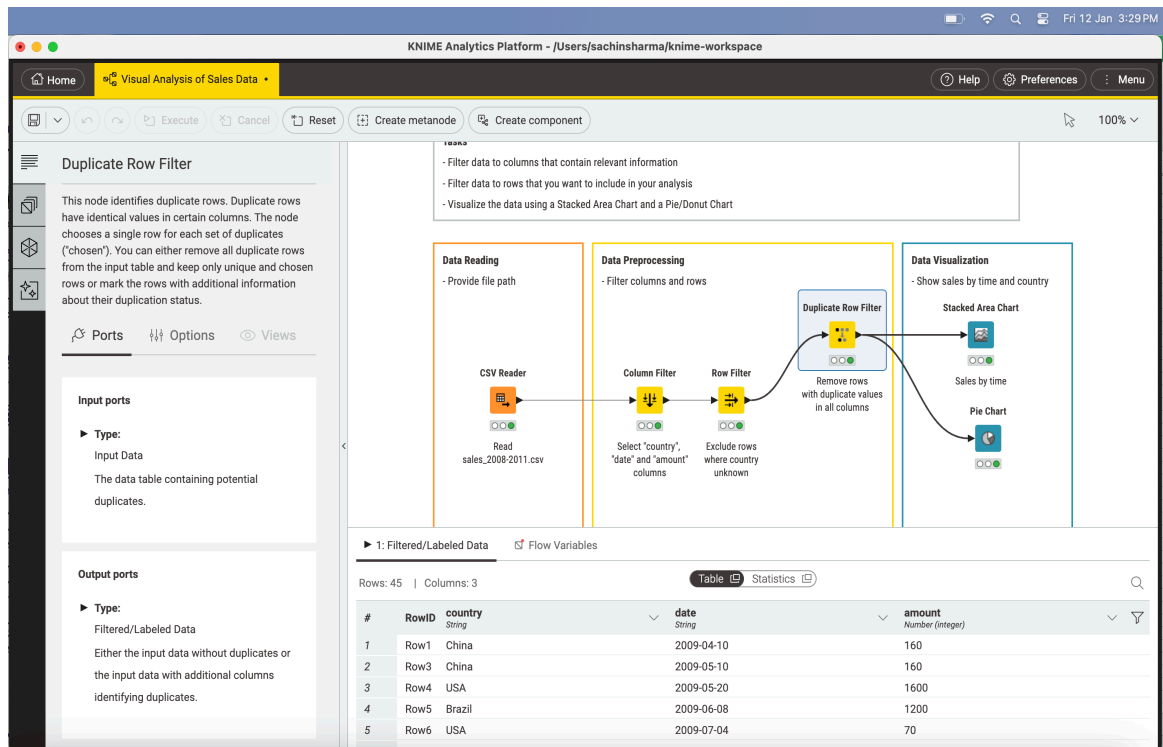
Figure 4

6. Examine the similarities of workflows to BPMN processes.

Workflows and BPMN processes are similar in that both are intended to automate a number of operations. While BPMN processes are more rigorous and intended to be followed exactly as they are spelled out, workflows are more adaptable and can be changed to account for changing circumstances.

There are some conceptual similarities between the two that can be explored in below Table. (*Reference*: KNIME Documentations https://www.knime.com)

Features	KNIME Workflows	BPMN Workflows
Visual Representation	KNIME workflows are visually represented as a series of interconnected nodes, each representing a specific data processing or analysis step. The visual representation allows users to design, understand, and modify the flow of data and operations easily.	Similarly, BPMN utilizes a visual notation system to represent business processes. In BPMN, processes are depicted through a set of standardized symbols and shapes, providing a visual language for describing the flow and activities of a business process.

Sequential Flow	Nodes in a KNIME workflow are connected in a sequential manner, defining the order in which data processing and analysis tasks are executed. The workflow structure guides the flow of data through various operations.	BPMN processes also emphasize the sequential flow of activities. Arrows and connections between BPMN elements illustrate the sequence in which tasks, events, and gateways are executed within a business process.
Modularity	KNIME workflows are modular, with each node encapsulating a specific operation or analytical task. This modularity allows for the creation of reusable components and the easy organization of complex analyses.	BPMN processes encourage modularity through the definition of subprocesses and the reuse of standardized elements. This modularity enhances the maintainability and scalability of business process models.
Data Transformation	KNIME is focused on data analytics, and workflows often include nodes for data transformation, cleansing, and manipulation. The primary goal is to process and analyze data to derive insights	While BPMN is more centred on business processes, data transformation may still be a part of certain activities within a business process, particularly when it involves decision-making and information exchange
User Interaction	KNIME allows for user interaction through components like interactive views and configuration options within nodes. Users can customize workflows and make decisions based on intermediate results.	BPMN supports user tasks and events, allowing for the modeling of user interactions within a business process. This can include manual tasks that require human input or decision points that involve user decisions

Table 1

While there are these conceptual similarities, it's important to note that KNIME is primarily designed for data analytics workflows, whereas BPMN is a notation standard specifically tailored for business processes. The similarities in visual representation and sequential flow exist to some extent due to the common goal of providing a clear and understandable way to model complex processes, whether they are focused on data analysis or business management.

Both BPMN processes and workflows are employed to automate a number of tasks. Workflows, however, are more adaptable than BPMN processes. Contrary to BPMN processes, which are intended to be followed exactly as they are put down, workflows can be modified to account for changing circumstances. So, compared to workflows, BPMN processes are more rigid.

7. **Are there any plugins to BPMN models in KNIME? Explain.**

   KNIME does not natively support BPMN model plugins.
   Business process modeling is governed by the BPMN standard, which KNIME does not natively support. In KNIME, there are a few different ways to work with BMPN models. Contrary to workflows, workflows are more adaptable and can be modified to account for changing circumstances.

   Reference: https://docs.knime.com

8. **Two modeling elements/concepts in KNIME are nodes and data. Are the computation units (nodes) and analytical routines (workflows) sufficient to capture and analyze routine business processes? Explain.**

   In KNIME, nodes and workflows are indeed fundamental elements that play a crucial role in capturing and analysing routine business processes.

   To record and evaluate standard business processes, there are enough compute nodes and analytical workflows. Workflows can be used to automate a process, and nodes can be used to represent the many steps in a process. Workflows can be used to automate a process, and nodes can be used to represent the many steps in a process. This indicates that the computation nodes (units of computing) and analytical workflows (routines of analysis) are adequate for capturing and analysing typical business processes.

   BPMN models are not directly supported by KNIME. In KNIME, there are a few different ways to work with BPMN models. Workflows and BPMN processes both serve the purpose of automating a number of actions. Workflows, however, are more adaptable than BPMN processes. To record and analyze typical business processes, there are enough compute nodes and analytical workflows.

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