Solution Sheet: Generating Prime Numbers Using Alteryx

Project Tasks and Step-by-Step Solution

This guide provides a detailed walkthrough for creating a workflow in Alteryx to generate prime numbers between 0 and 50 (excluding 1).

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1. Adding a Text Input Tool

- Open a new workflow in Alteryx.
- Drag and drop a **Text Input** tool onto the canvas.
- Enter "50" as the text in the Text Input tool to specify the maximum value of the range.

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2. Expanding the Range Using Generate Rows Tool

- Add a **Generate Rows** tool to the canvas.
- Set the following configurations:
    - **Start** value: 50
    - **End** value: 2
- Connect the output of the Text Input tool to the input of the Generate Rows tool.

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3. Adding a "Division" Column Using Formula Tool

- Add a **Formula** tool to the workflow.
- Create a new column named **Division** and set its value to 2.
- Connect the output of the Generate Rows tool to the input of the Formula tool.

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4. Selecting Required Columns Using Select Tool

- Add a **Select** tool to the workflow.
- Choose only the **Number** and **Division** columns for further analysis.
- Connect the output of the Formula tool to the input of the Select tool.

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5. Expanding Numbers to Find Prime Combinations Using Generate Rows Tool

- Add another **Generate Rows** tool to the workflow.
- Use the following formula to generate all possible combinations of numbers:

sql

```
if ([Start] > [End]) and ([Start] >= 2) and ([Start] <= 50) then [Start] else null endif
```

- Connect the output of the Select tool to the input of this Generate Rows tool.

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6. Calculating Remainders Using Formula Tool

- Add another **Formula** tool to the workflow.
- Create a new column named **Dvsn** and use the following formula:

css

```
Mod([Number], [Division])
```

- Connect the output of the second Generate Rows tool to the input of this Formula tool.

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7. Filtering Numbers with Zero Remainder Using Filter Tool

- Add a **Filter** tool to the workflow.
- Set the condition to:

csharp

```
[Dvsn] = 0
```

- Connect the output of the Formula tool to the Filter tool.

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8. Grouping Numbers Using Summarize Tool

- Add a **Summarize** tool to the workflow.
- Configure the tool as follows:

    - Group by the **Number** column.
    - Select **Count** as the summary function for the "Number" column.
- Connect the output of the Filter tool to the Summarize tool.

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9. Joining Summarized Data with Generated Rows Using Join Tool

- Add a **Join** tool to the workflow.
- Connect the output of the first **Generate Rows** tool to the left input of the Join tool.
- Connect the output of the Summarize tool to the right input of the Join tool.
- In the Join tool settings:
    - Select **Number** as the join field.
    - Choose **Right Outer Join** as the join type.

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10. Sorting Results Using Sort Tool

- Add a **Sort** tool to the workflow.
- Set the configuration to sort by the **Number** column in ascending order.
- Connect the output of the Join tool to the Sort tool.

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11. Viewing the Final Results Using Browse Tool

- Add a **Browse** tool to the workflow to visualize the results.
- Click the **Run** button to execute the workflow and display the prime numbers.

Conclusion

By following these steps, the Alteryx workflow efficiently identifies and lists all prime numbers between 0 and 50 (excluding 1). This project showcases the power of Alteryx tools

for data manipulation and analysis, providing hands-on experience in real-world problem-solving.