IBM Cognos is a powerful business intelligence and analytics tool that can help you design interactive dashboards and reports to gain valuable insights. To achieve your goals, follow these general steps:

1. Data Gathering:First, ensure you have access to the necessary data sources, which may include databases, spreadsheets, or other data repositories.

2. Data Preparation:Clean and transform your data as needed. This includes removing duplicates, handling missing values, and structuring the data for analysis.

3. Create Visualizations:Use IBM Cognos to create a variety of visualizations, such as charts, graphs, and tables, to represent your data. You can design these visualizations to showcase top-selling products, sales trends, and customer preferences.

4. Design Dashboards:Assemble the visualizations into interactive dashboards. Arrange them to provide a clear and intuitive view of the insights you want to derive.

5. Set Interactivity:Implement interactive features like filters, drill-downs, and parameterized reports to enable users to explore the data and insights in real-time.

6. Apply Analytics:Utilize built-in analytics tools within IBM Cognos to calculate metrics like total sales, product rankings, and customer behavior patterns.

7. Identify Key Insights: Review the visualizations and analytics results to identify key insights. This could involve recognizing top-selling products, pinpointing peak sales periods, and understanding customer preferences for specific products.

8. Sharing and Collaboration: Share the dashboards and reports with relevant stakeholders within your organization, and encourage collaboration and discussion around the insights.

9. Continuous Monitoring:Keep the dashboards up to date and continuously monitor the data to identify any changing trends or emerging insights.

Remember that the specific steps may vary depending on your data sources and the version of IBM Cognos you are using. Regularly update your dashboards and reports to ensure they remain relevant and provide actionable insights.

Algorithm for creating interactive dashboards and reports using IBM Cognos:

Algorithm: Creating Interactive Dashboards and Reports with IBM Cognos

1. **Data Preparation:**

- Gather and prepare the necessary data sources, ensuring they are clean and structured for analysis.

2. **Initialize IBM Cognos:**

- Start IBM Cognos and access the reporting environment.

3. **Create a New Report:**

- Initialize a new report and set a title (e.g., "Sales Insights Report").

4. **Data Query and Visualization:**

- For each visualization you want to include in the report, follow these steps:

- Create a data query to retrieve the required data.

- Define the visualization type (e.g., chart, table, list).

- Customize the visualization by specifying data fields, titles, and formatting.

5. **Interactive Features:**

- Implement interactive features within the report, such as:

- Filters: Create filters for dynamic data selection.

- Parameters: Set up parameters for user input (e.g., date range, product selection).

- Drill-down: Enable users to explore data at different levels of detail.

- Sorting: Apply sorting to visualize top-selling products or trends.

6. **Calculations and Metrics:**

- Add calculations to derive key metrics (e.g., total sales, sales growth).

- Apply conditional formatting to highlight specific data points.

7. **Dashboard Composition:**

- Organize the visualizations into an interactive dashboard layout.

- Arrange and resize components to create an intuitive user interface.

8. **Export Options:**

- Allow users to export the report in various formats (e.g., PDF, Excel, CSV).

9. **Parameterized Filters:**

- For each parameterized filter, set up user prompts and options.
- Connect filters to data queries for dynamic filtering.

10. **Multiple Charts (Optional):**

- If needed, create multiple charts or visualizations to represent different aspects of the data.

11. **Save and Share:**

- Save the report in a designated location within Cognos.
- Share the report with relevant stakeholders within your organization.

12. **Continuous Monitoring:**

- Periodically review and update the report to ensure it remains relevant.

- Monitor data sources for changes or updates.

13. **User Training (Optional):**

- Provide training to end-users on how to interact with and extract insights from the report.

14. **Error Handling and Security:**

- Implement error handling and security measures as per your organization's policies.

15. **Close IBM Cognos:**

- Properly close the IBM Cognos environment when you have finished working on the report.

This algorithm provides a structured approach for creating interactive dashboards and reports in IBM Cognos. The specific implementation details will depend on your data sources, reporting requirements, and the version of IBM Cognos you are using.

PROGRAM:

```
// Import necessary libraries
importPackage(Packages.com.cognos.developer.script.bibus);

// Create a new report
var myReport = reportContext.createNew();

// Set report title
myReport.setDisplayName("Sales Insights Report");

// Create a query
var myQuery = myReport.createDataItem("MyDataItem");
myQuery.setQuery("SELECT ProductName, SalesAmount FROM SalesData");

// Create a list to display data
var myList = myReport.createList();
myList.setQuery(myQuery);
```

```
myList.setColumnTitles(["Product Name", "Sales Amount"]);


// Apply sorting to identify top-selling products
myQuery.setSort(["SalesAmount"], ["desc"]);


// Create a chart to visualize sales trends
var myChart = myReport.createChart();
myChart.setQuery(myQuery);
myChart.setChartType(ChartType.COLUMN);
myChart.setChartTitle("Sales Trends");


// Create a filter for date range selection
var myFilter = myReport.createFilter("DateRange");
myFilter.setFilterExpression("SalesDate BETWEEN ? AND ?");
myFilter.setPrompt("Select a Date Range:");


// Apply the filter to the query
myQuery.addFilter(myFilter);


// Set up parameters for the filter
var startDate = reportContext.getParameterValue("StartDate");
```

```
var endDate = reportContext.getParameterValue("EndDate");

myFilter.setValues([startDate, endDate]);


// Set up the report layout

myReport.setPageLayout(PageLayout.LANDSCAPE);

myReport.setPageMargins(1, 1, 1, 1);


// Save the report

var reportService = reportContext.getReportService();

var reportPath = "/content/folder/MyReports/SalesInsightsReport";

reportService.createReport(myReport, reportPath);


// Run the report and deliver it to users

var reportRunOptions = reportContext.getReportRunOptions();

var outputFormat = OutputFormat.PDF;

var reportOutput = reportService.runReport(myReport, reportRunOptions,
outputFormat);


// Optionally, email the report to stakeholders

var emailService = reportContext.getEmailService();

var email = emailService.newEmail();

email.addTo("recipient@example.com");
```

```
email.setSubject("Sales Insights Report");

email.setBody("Please find the attached Sales Insights Report.");

email.addAttachment(reportOutput.getReportData(),
"SalesInsightsReport.pdf");

emailService.send(email);


// Add a calculation for total sales

var totalSalesCalculation = myReport.createCalculation("TotalSales");

totalSalesCalculation.setExpression("SUM(SalesAmount)");


// Add a calculation for sales growth

var salesGrowthCalculation = myReport.createCalculation("SalesGrowth");

salesGrowthCalculation.setExpression("(SalesAmount - LAG(SalesAmount, 1)) /
LAG(SalesAmount, 1)");


// Add conditional formatting to the chart

var formattingRule = myChart.createFormattingRule();

formattingRule.setCondition("SalesAmount > 10000");

formattingRule.setStyle("color: red; font-weight: bold;");

myChart.addFormattingRule(formattingRule);


// Create additional filters for date range and product selection
```

```
var productFilter = myReport.createFilter("ProductFilter");

productFilter.setFilterExpression("ProductName = ?");

productFilter.setPrompt("Select a Product:");

myQuery.addFilter(productFilter);


// Create a parameter for product selection

var selectedProduct = reportContext.getParameterValue("SelectedProduct");

productFilter.setValues([selectedProduct]);


// Create another chart to visualize sales growth

var growthChart = myReport.createChart();

growthChart.setQuery(myQuery);

growthChart.setChartType(ChartType.LINE);

growthChart.setChartTitle("Sales Growth Trends");


// Add export options

var reportOutputFormats = [OutputFormat.PDF, OutputFormat.EXCEL,
OutputFormat.CSV];

reportRunOptions.setOutputFormats(reportOutputFormats);
```

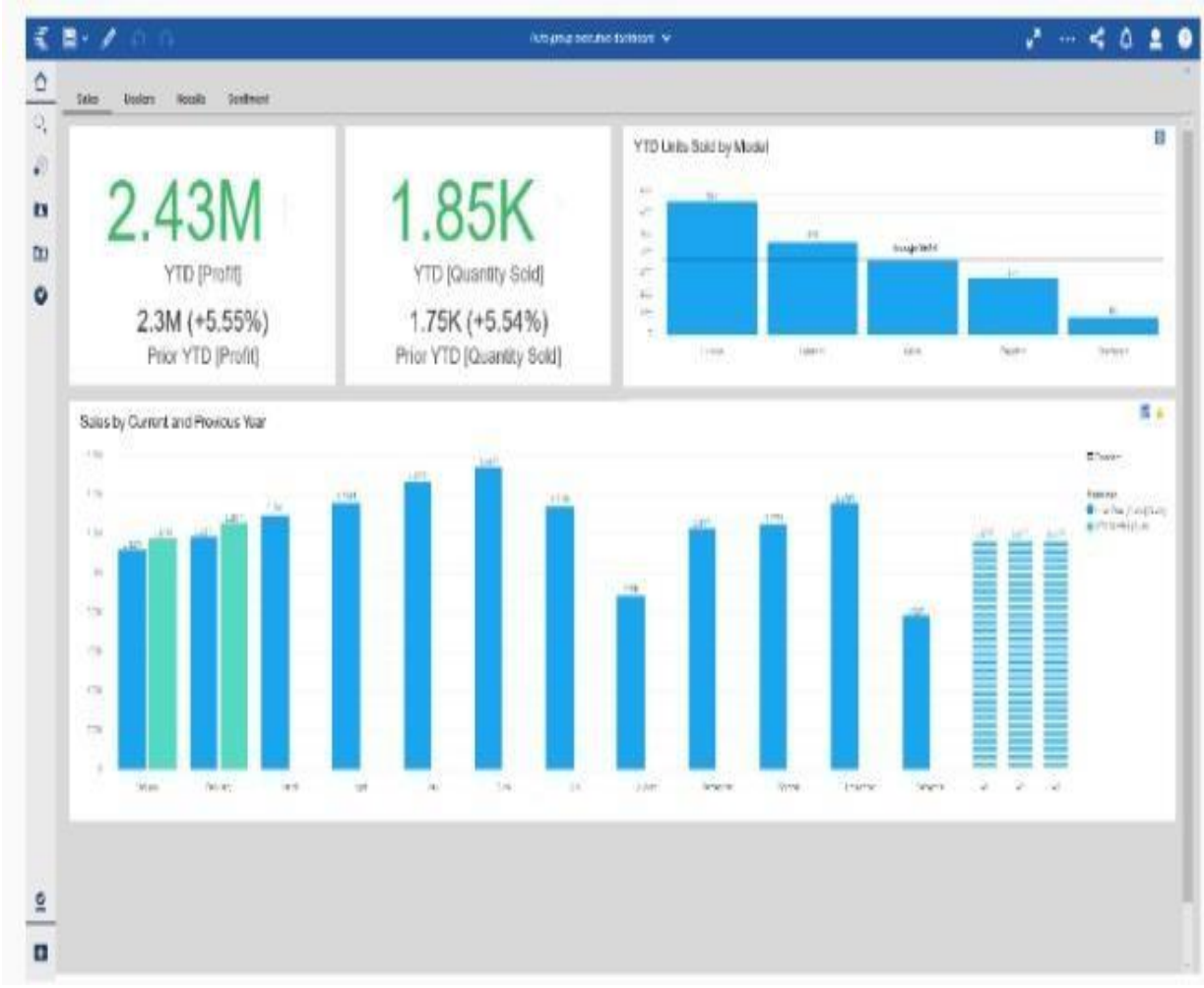
FEATURES:

- **Calculations: Calculate additional metrics, like total sales and sales growth.**

- **Conditional Formatting: Apply conditional formatting to highlight certain data points.**
- **Parameterized Filters: Allow users to filter data by multiple criteria.**
- **Multiple Charts: Create more than one chart for a comprehensive view.**
- **Export Options: Provide users with various export format options.**

OUTPUT:

1.


2.43M
YTD [Profit]
2.3M (+5.55%)
Prior YTD [Profit]
1.85K
YTD [Quantity Sold]
1.75K (+5.54%)
Prior YTD [Quantity Sold]
YTD Units Sold by Model
Sales by Current and Previous Year

2.


Revenue Analysis
89.2M
Quantity
4.69B
Revenue
1.92B
Gross profit
Revenue Monthly Trend

3.


Order
Product
2010
2011
2012
2013
623M
Gross Profit (Sum)
0.441
Gross Margin (Average)
Data asset properties
Color palettes
Bar color
Hide axis title/labels
Maintain axis scale
Hide empty
Abbreviate numbers

4.

Final Conclusion and Results:

Review the report's key insights and results, such as identifying top-selling products, sales trends, and customer preferences.

Summarize actionable findings and recommendations for the business.

Share the report with stakeholders for informed decision-making.

Close IBM Cognos:

Properly close the IBM Cognos environment when you have finished working on the report.