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Carto Recipes

The Carto classes are in the **geoscript.carto** package.

The Carto package contains classes for creating cartographic documents. All items are added to the document with x and y coordinates whose origin is the upper left and width and a height.

Adding a Map

Add a map

```
Workspace workspace = new GeoPackage('src/main/resources/data.gpkg')
Layer countries = workspace.get("countries")
countries.style = new SLDReader().read(new File('src/main/resources/countries.sld'))
Layer ocean = workspace.get("ocean")
ocean.style = new SLDReader().read(new File('src/main/resources/ocean.sld'))
Map map = new Map(
    layers: [ocean, countries],
    bounds: new Bounds(-180,-85,180,85, "EPSG:4326").reproject("EPSG:3857"),
    projection: new Projection("EPSG:3857")
)

File file = new File("map.png")
file.withOutputStream { OutputStream outputStream ->

    PageSize pageSize = PageSize.LETTER_LANDSCAPE

    CartoFactories.findByName("png")
            .create(pageSize)
            .rectangle(new RectangleItem(0, 0, pageSize.width - 1, pageSize.height -
1)
                .fillColor(Color.WHITE)
            )
            .map(new MapItem(20, 20, pageSize.width - 40, pageSize.height - 40).map
(map))
            .build(outputStream)

}
```

Adding a Text

Add text

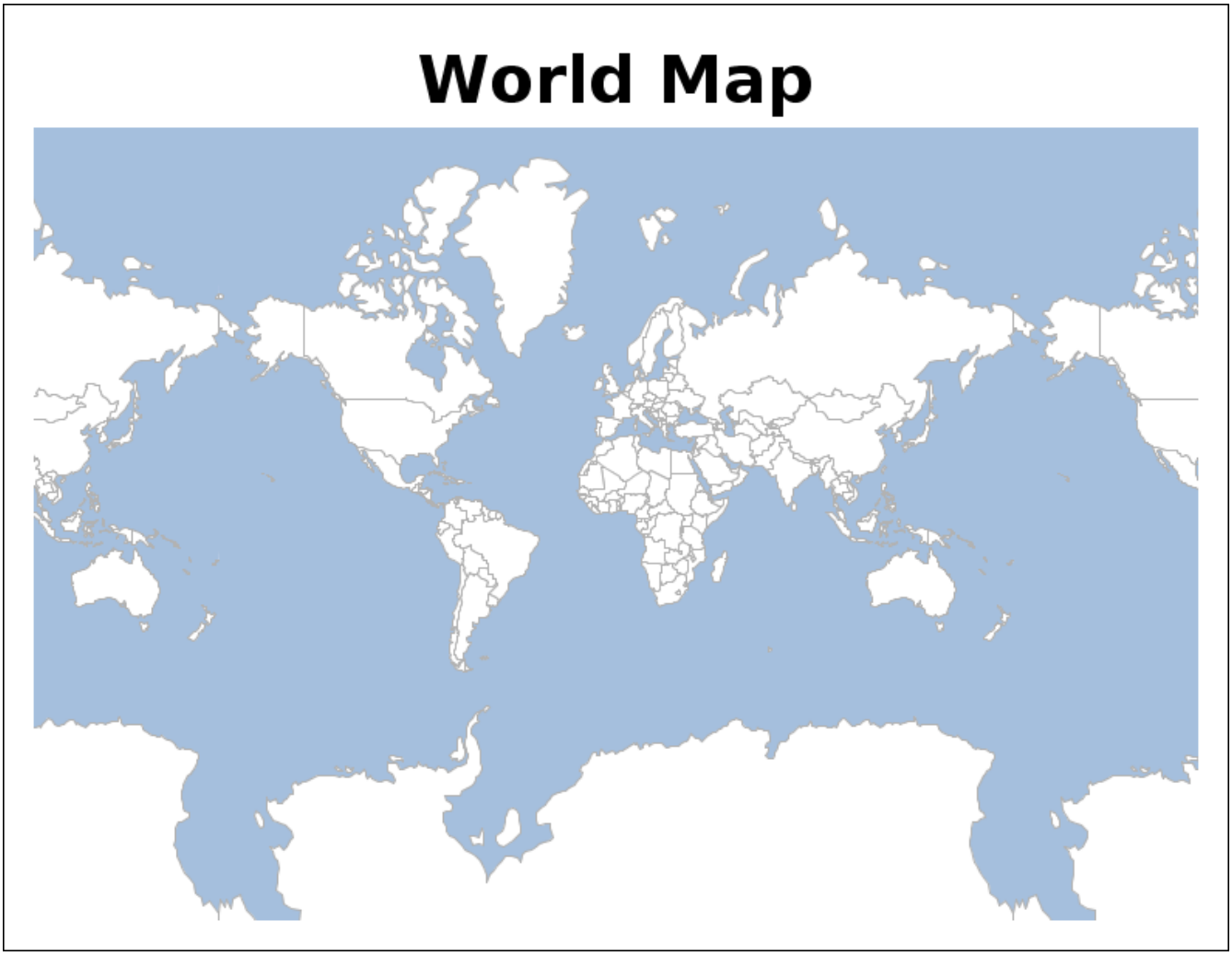
```
Workspace workspace = new GeoPackage('src/main/resources/data.gpkg')
Layer countries = workspace.get("countries")
countries.style = new SLDReader().read(new File('src/main/resources/countries.sld'))
Layer ocean = workspace.get("ocean")
ocean.style = new SLDReader().read(new File('src/main/resources/ocean.sld'))
Map map = new Map(
        layers: [ocean, countries],
        bounds: new Bounds(-180,-85,180,85, "EPSG:4326").reproject("EPSG:3857"),
        projection: new Projection("EPSG:3857")
)

File file = new File("map.png")
file.withOutputStream { OutputStream outputStream ->

    PageSize pageSize = PageSize.LETTER_LANDSCAPE

    CartoFactories.findByName("png")
            .create(pageSize)
            .rectangle(new RectangleItem(0, 0, pageSize.width - 1, pageSize.height -
1)
                .fillColor(Color.WHITE)
            )
            .text(new TextItem(20,20, pageSize.width - 40, 60)
                .text("World Map")
                .font(new Font("Arial", Font.BOLD, 42))
                .verticalAlign(VerticalAlign.MIDDLE)
                .horizontalAlign(HorizontalAlign.CENTER)
            )
            .map(new MapItem(20, 80, pageSize.width - 40, pageSize.height - 100).map
(map))
            .build(outputStream)

}
```



Adding a Rectangle

Add a rectangle

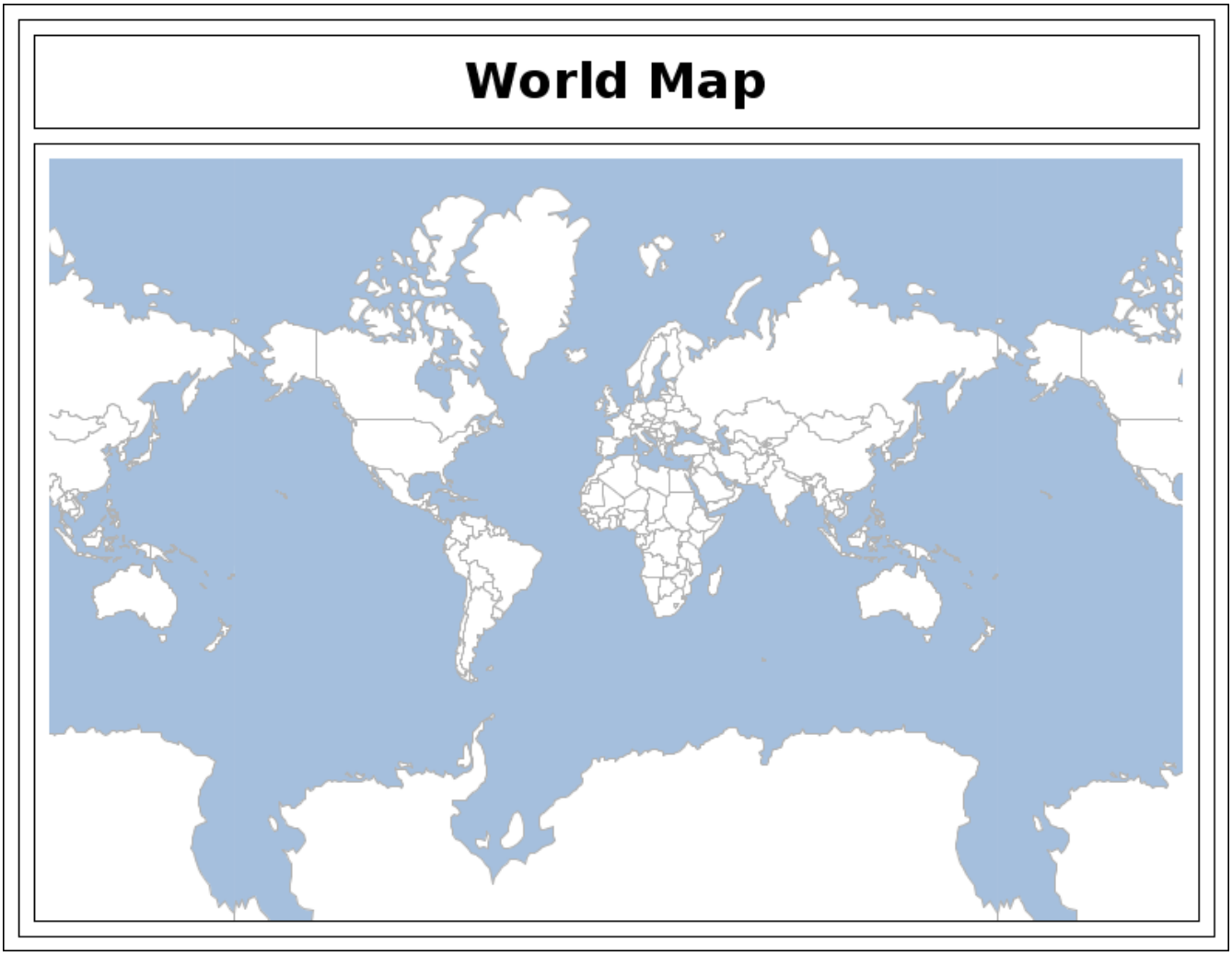
```
Workspace workspace = new GeoPackage('src/main/resources/data.gpkg')
Layer countries = workspace.get("countries")
countries.style = new SLDReader().read(new File('src/main/resources/countries.sld'))
Layer ocean = workspace.get("ocean")
ocean.style = new SLDReader().read(new File('src/main/resources/ocean.sld'))
Map map = new Map(
        layers: [ocean, countries],
        bounds: new Bounds(-180,-85,180,85, "EPSG:4326").reproject("EPSG:3857"),
        projection: new Projection("EPSG:3857")
)

File file = new File("map.png")
file.withOutputStream { OutputStream outputStream ->

    PageSize pageSize = PageSize.LETTER_LANDSCAPE

    CartoFactories.findByName("png")
            .create(pageSize)
            .rectangle(new RectangleItem(0, 0, pageSize.width - 1, pageSize.height -
1)
                .fillColor(Color.WHITE)
            )
            .rectangle(new RectangleItem(10,10, pageSize.width - 20, pageSize.height -
20))
            .rectangle(new RectangleItem(20,20, pageSize.width - 40, 60))
            .rectangle(new RectangleItem(20,90, pageSize.width - 40, pageSize.height -
110))
            .text(new TextItem(20,20, pageSize.width - 40, 60)
                .text("World Map")
                .font(new Font("Arial", Font.BOLD, 32))
                .verticalAlign(VerticalAlign.MIDDLE)
                .horizontalAlign(HorizontalAlign.CENTER)
            )
            .map(new MapItem(30, 100, pageSize.width - 60, pageSize.height - 120).map
(map))
            .build(outputStream)

}
```



Adding a North Arrow

Add a north arrow

```
Workspace workspace = new GeoPackage('src/main/resources/data.gpkg')
Layer countries = workspace.get("countries")
countries.style = new SLDReader().read(new File('src/main/resources/countries.sld'))
Layer ocean = workspace.get("ocean")
ocean.style = new SLDReader().read(new File('src/main/resources/ocean.sld'))
Map map = new Map(
        layers: [ocean, countries],
        bounds: new Bounds(-180,-85,180,85, "EPSG:4326").reproject("EPSG:3857"),
        projection: new Projection("EPSG:3857")
)

File file = new File("map.png")
file.withOutputStream { OutputStream outputStream ->

    PageSize pageSize = PageSize.LETTER_LANDSCAPE

    CartoFactories.findByName("png")
        .create(pageSize)
        .rectangle(new RectangleItem(0, 0, pageSize.width - 1, pageSize.height - 1)
            .fillColor(Color.WHITE)
        )
        .map(new MapItem(20, 20, pageSize.width - 40, pageSize.height - 40).map(map))
        .northArrow(new NorthArrowItem(pageSize.width - 60, pageSize.height - 80, 40,
60))
        .build(outputStream)

}
```

Adding a date

Add a date

```
Workspace workspace = new GeoPackage('src/main/resources/data.gpkg')
Layer countries = workspace.get("countries")
countries.style = new SLDReader().read(new File('src/main/resources/countries.sld'))
Layer ocean = workspace.get("ocean")
ocean.style = new SLDReader().read(new File('src/main/resources/ocean.sld'))
Map map = new Map(
        layers: [ocean, countries],
        bounds: new Bounds(-180,-85,180,85, "EPSG:4326").reproject("EPSG:3857"),
        projection: new Projection("EPSG:3857")
)

File file = new File("map.png")
file.withOutputStream { OutputStream outputStream ->

    PageSize pageSize = PageSize.LETTER_LANDSCAPE

    CartoFactories.findByName("png")
        .create(pageSize)
        .rectangle(new RectangleItem(0, 0, pageSize.width - 1, pageSize.height - 1)
            .fillColor(Color.WHITE)
        )
        .text(new TextItem(20,15, pageSize.width - 40, 60)
            .text("World Map")
            .font(new Font("Arial", Font.BOLD, 42))
            .verticalAlign(VerticalAlign.TOP)
            .horizontalAlign(HorizontalAlign.CENTER)
        )
        .dateText(new DateTextItem(20,58, pageSize.width - 40, 20)
            .font(new Font("Arial", Font.ITALIC, 18))
            .verticalAlign(VerticalAlign.BOTTOM)
            .horizontalAlign(HorizontalAlign.CENTER)
        )
        .map(new MapItem(20, 80, pageSize.width - 40, pageSize.height - 100).map(map))
        .build(outputStream)

}
```

World Map

03/14/2020