Norris

Node Real-time Intelligence

Norris - User Manual

Document Informations

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Summary

This document contains technical and operative informations on the usage of the Norris web application$_{|g|}$.

Changelog

Version	Date	Author	Role	Description
v3.0	2015/06/14	Davide Trivellato	Project Manager	Verification and validation
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Tabella 1: Document versioning.

Indice

Elenco delle figure

Elenco delle tabelle

1 Web App

1.1 Introduction

1.1.1 Welcome to Norris-nrti Web-App

Norris-nrti is a Web-APP that lets you display graphs and observe real-time updates of data from a defined URL$_{|g|}$. The charts come in several types: bar chart$_{|g|}$, line chart$_{|g|}$, map chart$_{|g|}$ and table$_{|g|}$. The application must be used through a browser and must be set in a precise HTML$_{|g|}$ structure in order to be completely functional.

1.1.2 Document purpose

The main purpose of this document is to aid developers in using the application, explaining how to integrate the HTML$_{|g|}$ code in it. Besides, it aims is to illustrate how to interact and take advantage of the functionalities that this app$_{|g|}$ can offer.

1.1.3 Glossary

In pursuance of avoiding words' misunderstanding and allowing a clear comprehension of the manual, it's possible to find the explanation to some ambiguous or specific words at the end of the document, in a Glossary. Words that are reported in the glossary are marked with the following symbol: $_{|g|}$.

1.1.4 System requirements

The application will work on any browser that supports AngularJS$_{|g|}$. An internet$_{|g|}$ connection is required.

1.1.5 Problems and malfunctioning

For each kind of unexpected problem with the app, please read the specific section.

1.2 Getting started

1.2.1 Using the App

In order to use the Web App of a Norris instance, you need the URL where it is located.
Once you have it, you only have to type it on your browser and enter the site.

1.2.2 What is Web-App Norris-nrti

As previously introduced, Norris-nrti is a web-app that displays data, arranged in several types of graph, which updates in real time. The main purpose of the app is showing data to the user in a thorough yet simple way. Further explanations on the app will follow in the next chapters, with a step-to-step guide to interaction supplied by images.

1.3 App layout

1.3.1 GUI$_{|g|}$ description

User can interact with the Norris-nrti Web-App through a simple and clean graphic interface; in fact, users can easily display charts and interact with them. The user inteface is composed of:

- a list of pages that shows name and description;
- single pages that display all their charts at the same time;

Many graphs will have radio buttons located at their upper side.

1.3.2 Pages list

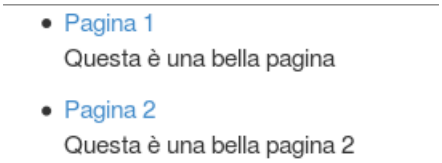

Figura 1: Pages List

A list of links to different pages is the first thing that can be seen entering the application. For each list item its name and description are displayed. The only possible action in this section is to select a page to access its data. By doing so, the user will be shown the entire content of the clicked page.

1.3.3 Page

In this section, the following objects are shown:

- buttons for interactions with the page. There's a link to return to the list of pages. It's also possible to move to the following and the previous pages, provided they exist.

Figura 2: Buttons to navigate between pages

- a page composed by a set of graphs, organized as a matrix.

1.3.4 Map Chart

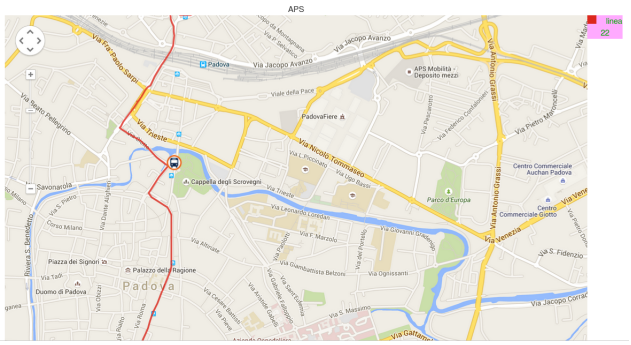

Figura 3: Map Chart

The Map Chart shows the data in a customized Google map. Data may be static or dynamic. Here's a list of features offered by this chart:

- Zoom and Drag: the user can drag and zoom at different levels to display different areas of the map, provided the app deveolper allowed users to perform these operations. These actions can also be executed through buttons on the left side of the map.
- Track: Polylines can be used to draw any path on the map. In the example, they are shows the path of the buses. The track can only be displayed, but not edited. Markers are displayed on the track if they exist, and they are updated in real-time. The marker appearance can either be a geometrical shape, a text or one of the several icons included in Norris, depending on the developer choice. In the APS example, markers track the bus positions, which are constantly updated (a marker is used for each bus).
- Legend: It shows informations about the flows. It identifies each by its colour and name; it is statically placed outside the graph in a position that is defined by the developer. The legend may be absent.
- Legend on point: it consists of a little text-box that appear above the marker. It displays informations about the track that the marker is related to. It can be activated by simply clicking on a marker.

1.3.5 Line Chart

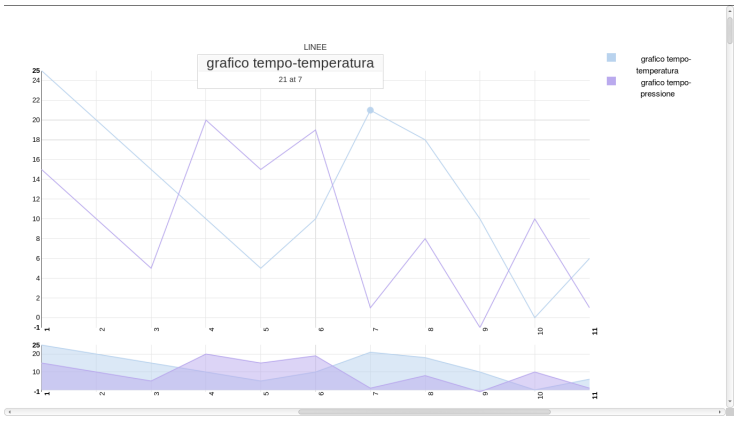

Figura 4: Line Chart

The Line Chart shows the data in lines. Here's a list of features offered by this chart:

- View Finder: it consists of an area located below the main chart, that displays a complete version of it; a colored rectangle-shaped area hovers the graph preview and the user, by reducing its size and moving it, can have the graph portion hovered by it be displayed in the main chart above. The selected area needs to be wider than a certain fixed width in order to be displayed.
- Line controls: checkboxes, one for each line, allow the user to hide and show them. They may be absent, according to developer's decision.
- subtended area: according to developer's choice, the area below the lines could be coloured with a transparency effect.
- Legend: It shows informations about all the lines. It identifies each line by its colour and name; it is statically placed outside the graph in a position that is defined by the developer. The legend may be present.
- Legend on point: it consists of a little text-box that appear above a point. It displays informations about it and about the line that it is related to. It is activated while the cursor passes above it as shown in the image.

1.3.6 Bar Chart

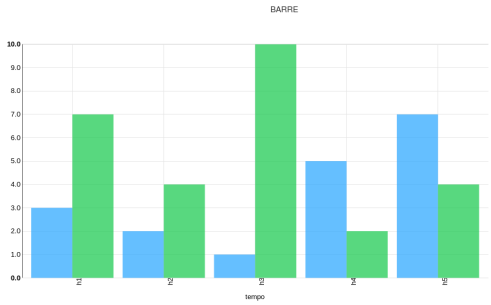

Figura 5: vertical Bar Chart

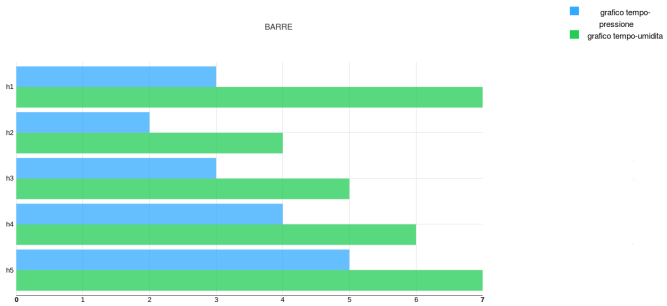

Figura 6: horizontal Bar Chart

The Bar Chart shows data as columns. Here's a list of feature offered by this chart:

- Grouping Controls: bars of different sets, but related by having the same index on the x axis, are always shown close to each other; they can, though, be shown as either grouped or stacked bars. These buttons allow the user to switch between these two options.
- Controls on groups of bars: controls for each bar, allows the user to choose to hide or show them. This option can be not present, according to developer's decision.
- Legend: It shows informations about all the groups of columns. It identifies each group by its colour and name; it is statically placed outside the graph in a position that is defined by the developer. The legend may be absent.
- Legend on point: consist of a little text-box that appears above a selected bar. It displays informations about the column value and the flow which it belongs to. It is activated while the cursor passes above it as shown in the image.

1.3.7 Table

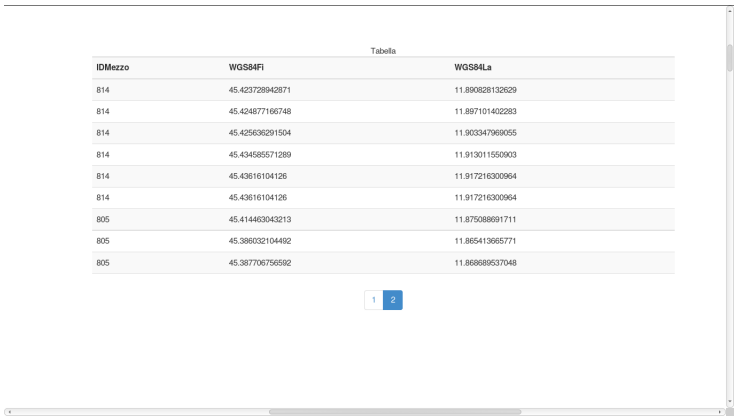

Figura 7: Table

The Table shows the data arranged in rows and columns. Here's a list of feature offered by this chart:

- Paging: the table only shows a set maximum amount of rows at a time, so the exceeding data is arranged in pages; these can be visited by using the paging controls below the table. These controls consist of buttons that link the user to the correspondent pages: these buttons can't be more than 10, so the displayed numbers will vary as the user scrolls through the pages.
- Sorting: if set, the table data are sorted in an ascending or a descending way, according to the developer's desicion. At every update, the new data are added at the right position.

2 Android App

2.1 Introduction

2.2 Welcome to Chart Norris

Chart Norris is an Android$_{|g|}$ app that allows users to connect to specific Norris URLs$_{|g|}$ and to get from them real time data streams. The obtained data can be arranged and displayed in different types of charts: bar charts$_{|g|}$, line charts$_{|g|}$, map charts$_{|g|}$ and tables. The app purpose is to grant to users a really similar experience to the one experienced by browser$_{|g|}$ users.

2.2.1 Document purpose

The document goal is to explain users how to install and use the application, in order to make it easier and to let them achieve the most complete experience with it.

2.2.2 Glossary

In pursuance of avoiding words' misunderstanding and allowing a clear comprehension of the manual, it's possible to find the explanation to some ambiguous or specific words at the end of the document, in a Glossary. Words that are reported in the glossary are marked with the following symbol: $_{|g|}$.

2.2.3 System requirements

The app works on tablets and smartphones running Android 2.2 or higher and it requires a WiFi$_{|g|}$ or packet data$_{|g|}$ connection.

2.2.4 Problems and malfunctioning

For each kind of unexpected problem with the app, please read the specific section.

2.3 Getting started

2.3.1 App installation

The Chart Norris application can be downloaded for free from the Aptoide platform at the following link: http://deltagraphs.store.aptoide.com/app/market/deltagraphs.norrisviewer/1/9844525/Chart+Norris.

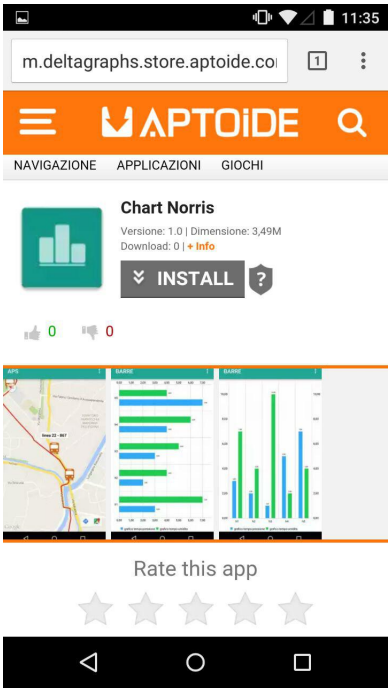

Figura 8: The app page on Aptoide

Otherwise, it can be found on our repository$_{|g|}$ at the following URL$_{|g|}$: http://github.com/DeltaGraphs/norris-viewer. Look for the file named **ChartNorris.apk** and download it for free. As soon as the download is completed, the app will be automatically installed. The application requires less than 3 MB$_{|g|}$ to be installed and in order to work it requires the following permissions:

- complete network access;
- network state visualization;
- Wi-Fi state visualization;
- access to GPS position:
  - exact location access;
  - approximate location access;
- access to Google services;
- USB archive access for reading and writing.

Follow the steps below to successfully perform the installation:

- **step 1**: read the privacy assurance and accept it:

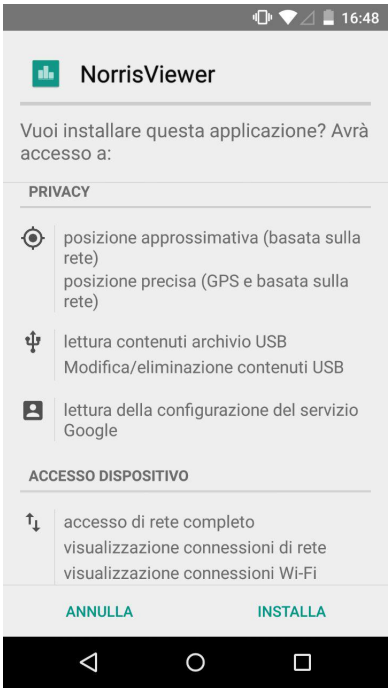

Figura 9: Installation pt.1

- **step 2**: wait until the installation has ended:

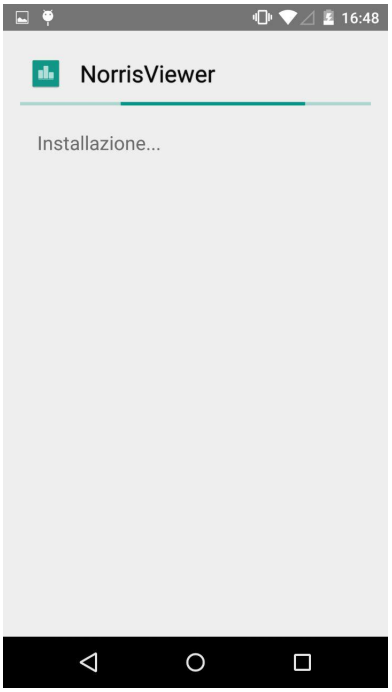

Figura 10: Installation pt.2

- **step 2**: exit the installation or open the app:

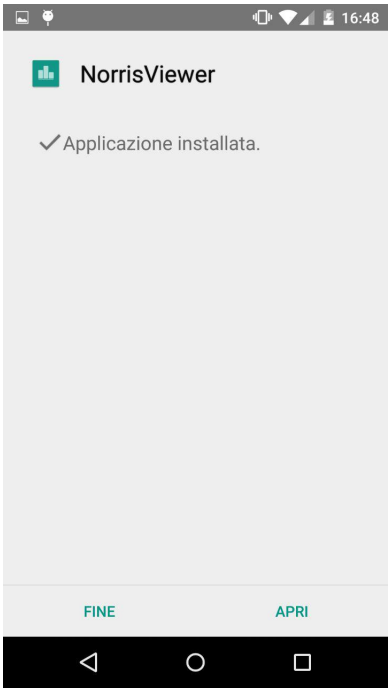

Figura 11: Installation pt.3

2.3.2 What is Chart Norris

As previously introduced, Chart Norris is an Android app$_{|g|}$ that displays data streams and static data on charts. As the app connects to a valid NorrisURL$_{|g|}$, the user can choose a chart to see its data. The type of streaming depends on the kind of data that is received from the app. The main purpose of the app is to have a complete experience, similarly to the browser version. Despite that, because of different types of interactions and display sizes, the browser$_{|g|}$ version and the Android$_{|g|}$ app features may sometimes differ. Further explanations regarding the app will follow in the next chapters, with a step-to-step guide to interaction supplied by images.

2.3.3 GUI$_{|g|}$ description

User can interact with the app Chart Norris, through a simple and clean graphic interface. Through the app, users can easily be shown a chart and interact with it. The user interface is composed of an action bar$_{|g|}$ placed on the top of the activity$_{|g|}$and a main container where contents will be displayed. In most of the activities a special button on the right side of the action bar can also be found, which is used to display settings and other actions that user can perform.

2.4 App layout

2.4.1 URL Dialog box

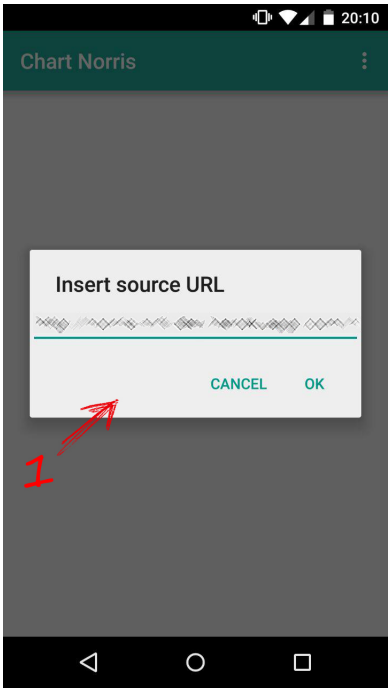

Figura 12: URL Dialog box

This is the first thing you can see as you start the application. It's a dialog box that hovers the Main Activity$_{|g|}$(which will be explained in the next section) and shows an editable text area and two buttons: one to rejectomg and one to confirm. In this dialog user can enter an URL and see the relative list of graphs and pages.

2.4.2 Home Activity$_{|g|}$

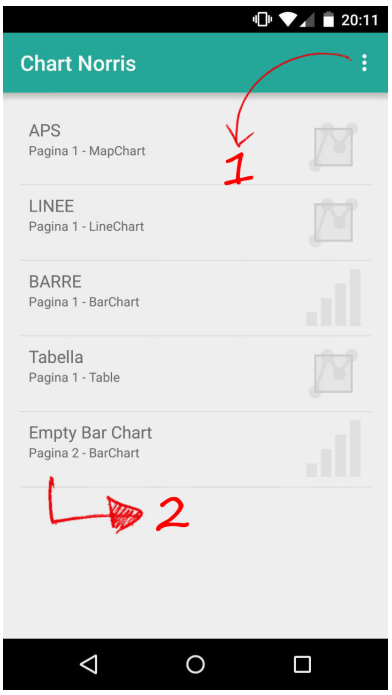

Figura 13: Home activity

In this activity, the user can see the graph list with their own description and the page where they are placed. The layout is composed of three parts:

- **Action bar**: placed on top, it shows the instance title and a button for the menu;
- **Main content**: placed in the center of the activity, it shows a clickable list of graphs;
- **Standard commands bar**: placed at the bottom of the activity, it's composed of three standard buttons (Back button, Home button and Task Manager button).

The standard android top bar (with time, signal and battery level) has been hidden in order to gain more space for the app UI; in fact, it has been designed especially for small screens. It's not been completely removed but merely hidden, so it can be display with a simple gesture: drag your finger down from top area of your screen.

2.4.2.1 Menu button : this button shows a little menu in you can select one among the following options:

- **Settings**: display the URL dialog box to insert a new URL;
- **Credits**: display the app credits.

The menu is shown in fig.14

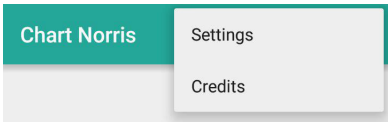

Figura 14: Options menu

2.4.3 Map Activity$_{|g|}$

Figura 15: Map activity

The Map activity$_{|g|}$ shows the data in a custom Google map. Data may be static or dynamic.

2.4.3.1 Legend on point: Point 1 in Fig. 15 shows the legend on point feature. It consists of a little text box that describes the selected marker. When you select a marker, you can also search for that position or watch road indications from your position to the marker's one with standards Google map's navigation buttons displayed on the bottom-right corner.

2.4.3.2 Custom markers: Point 2 in Fig. 15 shows a custom marker, as we implemented the possibility to use custom preset markers. In the example, a particular bus icon has been used for the istance that shows buses paths and positions.

2.4.3.3 Polyline: Point 3 in Fig. 15 is the polyline$_{|g|}$ feature. Polylines allow the developer to draw any path on the map. In the example, a polyline$_{|g|}$ shows the buses path.

2.4.4 Line chart Activity$_{|g|}$

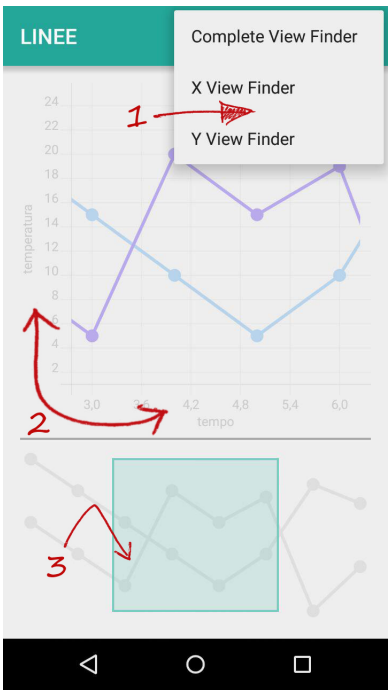

Figura 16: Line chart activity

Line chart activity$_{|g|}$ shows an istance of a particular chart that shows data in one or more lines.

2.4.4.1 Settings Point 1 in Fig. 16 shows the settings menu that will be displayed after pressing the dedicated button. The actions allowed to users are:

- **X View Finder**: allows user to scroll the View Finder selector horizzontally;
- **Y View Finder**: allows user to scroll the View Finder selector vertically;
- **Complete View Finder**: allows user to scroll in every direction.

2.4.4.2 Axis Point 2 in Fig. 16 shows custom axes for the particular graph instance.

2.4.4.3 View Finder At point 3 there's the core feature of this graph: the View Finder. It's a particular way of zoomng that allows the user to have a full vision of the graph on the preview graph and an enlarged vision of the zoomed area on the main graph. The ViewFinder selector can be resized depending on the type of scrolling selected in the menu.

2.4.4.4 Point Value When you select a point on the graph with your finger, it will display the name of the line and the X and Y values of that point, like in Fig.17.

Figura 17: Point value

2.4.5 Bar chart Activity$_{|g|}$

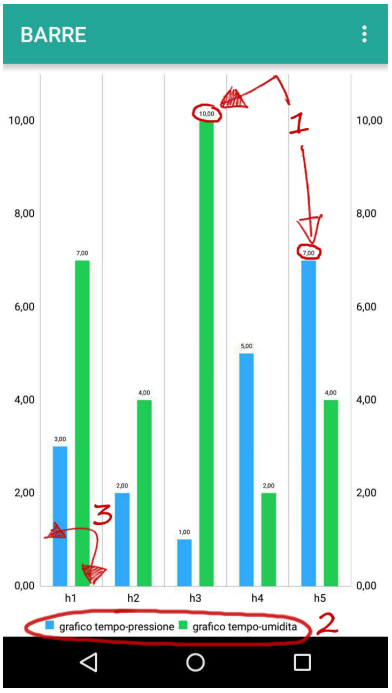

Figura 18: Bar chart activity with vertical bar chart

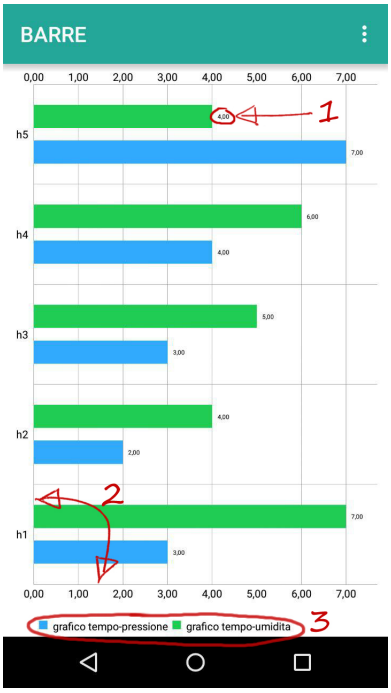

Figura 19: Bar chart activity with horizontal bar chart

In this activity$_{|g|}$ you can see the implementation of a vertical or horizontal bar chart, depending on the instance. On the top of any column is each column' own Y value displayed, as shown at point 1 of Fig.18-19. At point 2 of Fig.18-19 you can see custom axes for each graph instance. Ultimately, in Fig.18-19 at point 3, the legend can be seen. Legend is made of two parts for each flow:

- **Colored icon**: a colored, square-shaped icon that shows the color of the flow;
- **Label**: the name of the flow.

2.4.6 Table Activity

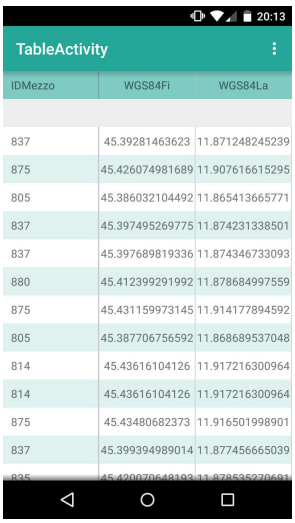

Figura 20: Table activity

The activity shows a particular instance of a table. Tables could be sorted or unsorted depending on the specific instance. You can see data and scroll horizontally and vertically the table but more features will be implemented in future releases of the app.

3 Problems and malfunctioning

The application is still in its early stage, so the user might run into some runtime bugs or technical issues when using some devices. Should any malfunctioning be found, we ask you to please send us an e-mail with the problem description at the following e-mail address: deltagraphs@gmail.com.

4 Glossary

4.1 A

Action bar: is a window feature that identifies the user location, and provides user actions and navigation modes.

Activity: is a single, focused thing that the user can do. Almost all activities interact with the user.

AngularJS: is a mobile operating system (OS) based on the Linux kernel and currently developed by Google. With a user interface based on direct manipulation, Android is designed primarily for touchscreen mobile devices such as smartphones and tablet computers, with specialized user interfaces for televisions (Android TV), cars (Android Auto), and wrist watches (Android Wear).

AngularJS: is an open-source web application framework maintained by Google and by a community of individual developers and corporations to address many of the challenges encountered in developing single-page applications.

4.2 B

Bar chart: is a chart that presents Grouped data with rectangular bars with lengths proportional to the values that they represent. The bars can be plotted vertically or horizontally. A vertical bar chart is sometimes called a column bar chart.

Browser: is a software application for retrieving, presenting and traversing information resources on the World Wide Web.

4.3 C

4.4 D

4.5 E

4.6 F

4.7 G

internet: a graphical user interface or GUI, is a type of interface that allows users to interact with electronic devices through graphical icons and visual indicators such as secondary notation, as opposed to text-based interfaces, typed command labels or text navigation.

4.8 H

4.9 I

internet: is a global system of interconnected computer networks that use the standard Internet protocol suite (TCP/IP) to link several billion devices worldwide.

4.10 L

Line chart: is a type of chart which displays information as a series of data points called 'markers' connected by straight line segments.

4.11 M

Map chart: is a type of chart which displays information about a map and its markers.

MB: is a multiple of the unit byte for digital information.

4.12 N

4.13 O

4.14 P

Packet Data: is a formatted unit of data carried by a packet-switched network. Computer communications links that do not support packets, such as traditional point-to-point telecommunications links, simply transmit data as a bit stream. When data is formatted into packets, the bandwidth of the communication medium can be better shared among users than if the network were circuit switched.

Polyline: is a list of points, where line segments are drawn between consecutive points.

4.15 Q

4.16 R

Repository: is an on-disk data structure which stores metadata for a set of files and/or directory structure. Depending on whether the version control system in use is distributed (for instance, Git or Mercurial) or centralized (Subversion or Perforce, for example), the whole set of information in the repository may be duplicated on every user's system or may be maintained on a single server.

4.17 S

4.18 T

4.19 U

URL: a Uniform Resource Locator (URL) is a reference to a resource that specifies the location of the resource on a computer network and a mechanism for retrieving it.

4.20 V

4.21 W

WiFi: is a local area wireless computer networking technology that allows electronic devices to network.

4.22 Z