

# CTM

Conversion Tracking Model

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# 1. Setup

We start with a fresh Debian.  
Then install Apache, PHP, MariaDB(MySQL).

- [Apache](#)

```
apt install apache2
```

.

Now go to `/etc/apache2/sites-available`

Copy `000-default.conf` to `ctm.conf`.

Open `ctm.conf` and put everything from `/setup/ctm.rewrite.conf` between  
`<VirtualHost *:80>` and `</VirtualHost>`.

Next go to `/etc/apache2/conf-available`

Open `security.conf` and change some variables.

- ServerTokens **Prod**
- ServerSignature **Off**

Enable Modul **MOD\_REWRITE**

```
a2enmod rewrite
```

Make Site available

```
a2ensite ctm.conf
```

Disable `000-default.conf`

```
a2dissite 000-default.conf
```

Then restart apache.

```
systemctl restart apache2
```

## - [PHP](#)

```
apt install php7.0 libapache2-mod-php7.0 php-mysql
```

Open `/etc/php/7.0/apache2/php.ini` and change some variables:

- `allow_url_fopen` = `off`
- `open_basedir` = `/var/www/html`
- `display_errors` = `off`
- `expose_php` = `off`
- append `exec, system, passthru, shell_exec, popen, escapeshellcmd, proc_open, proc_nice, ini_restore` to `disable_functions`

## - [MariaDB](#)

```
apt install mariadb-server mariadb-client
```

```
mysql_secure_installation
```

*Now we have installed everything.  
We proceed with our Database.*

- *install the ctm database structure*

```
mysql -u root -p < /setup/ctm.sys.sql
```

- *create database CTM*
- *create table (platform, conversion, connection, customer)*
- *create db user „mhs“ with password „mhs4mhs@ctm.“*
- *grant SELECT,INSERT,UPDATE ON CTM.\* TO 'mhs'@'localhost'*
- *insert (123, „max“, HASH(„PASSWORD“)) into customer*

- *install the ctm database data*

```
mysql -u root -p < /setup/ctm.data.sql
```

- *insert data into (platform, conversion and connection)*

*Now copy all Files and Folders without `/setup` and `ctm.pdf` to `/var/www/html`*

*The System is now ready*

## 2. Distribution Model

$$conversion = (c_0, c_1, c_2, \dots, c_n), c \in id_{platform}, n = count(Conversion_{placements})$$

$$platform = (p_0, p_1, p_2, \dots, p_m), p \in id_{platform}, m = count(uniquePlatform_{Conversion})$$

$$delta, d \in \mathbb{N}$$

$$weight = (w_0, w_1, w_2, w_3, w_4, w_5, w_6), w \in \mathbb{N}, w_0 > w_1 > w_2 > w_3 > w_4, w_4 > w_5 + (delta - 1) * w_6, w_5 > delta * w_6$$

$$score = (s_0, s_1, s_2, \dots, s_n), s_0 \in (w_0, w_1, w_2, w_3), s_1 \rightarrow s_{(n-1)} \in w_5, s_n \in w_4$$

Let  $delta=3$  we process 4 different valid cases for  $n$ .

$$\text{Case 1: } s_0 = w_0, \forall n=1, \forall m=1$$

$$\begin{aligned} \text{Case 2: } s_0 &= w_1, \forall n=2, \forall m=1 \\ s_0 &= w_4, s_1 = w_5, \forall n=2, \forall m>1 \end{aligned}$$

$$\begin{aligned} \text{Case 3: } s_0 &= w_2, \forall n=3, \forall m=1 \\ s_0 &= w_4, s_1 = w_6, s_2 = w_5, \forall n=3, \forall m>1 \end{aligned}$$

$$\begin{aligned} \text{Case 4: } s_0 &= w_3, \forall n \geq 4, \forall m=1 \\ s_0 &= w_4, s_1 \rightarrow s_{(n-1)} = w_6, s_n = w_5, \forall n \geq 4 \forall m>1 \end{aligned}$$

Now we calculate our score with

$$newscore_{platform} = oldscore_{platform} + \sum_0^n s_n, \forall c_n = id_{platform}, n_{max} = delta$$

Each Platform is counted only  $delta$  times.  $s_0$  and  $s_n$  are counted in each case.

*Ex :*

$weight = (16, 15, 14, 13, 7, 4, 1), \delta = 3$

$conversion = (1, 3, 5, 1)$

↓

$score = (7, 1, 1, 4)$

↓

$platform_1 = 11 \text{ Points}$

$platform_3 = 1 \text{ Point}$

$platform_5 = 1 \text{ Point}$

$conversion = (1, 3)$

↓

$score = (7, 4)$

↓

$platform_1 = 7 \text{ Points}$

$platform_3 = 4 \text{ Points}$

$conversion = (7)$

↓

$score = (16)$

↓

$platform_7 = 16 \text{ Points}$

$conversion = (3, 1, 9, 5, 3, 5, 3, 4, 3)$

↓

$score = (7, 1, 1, 1, 1, 1, 1, 1, 4)$

↓

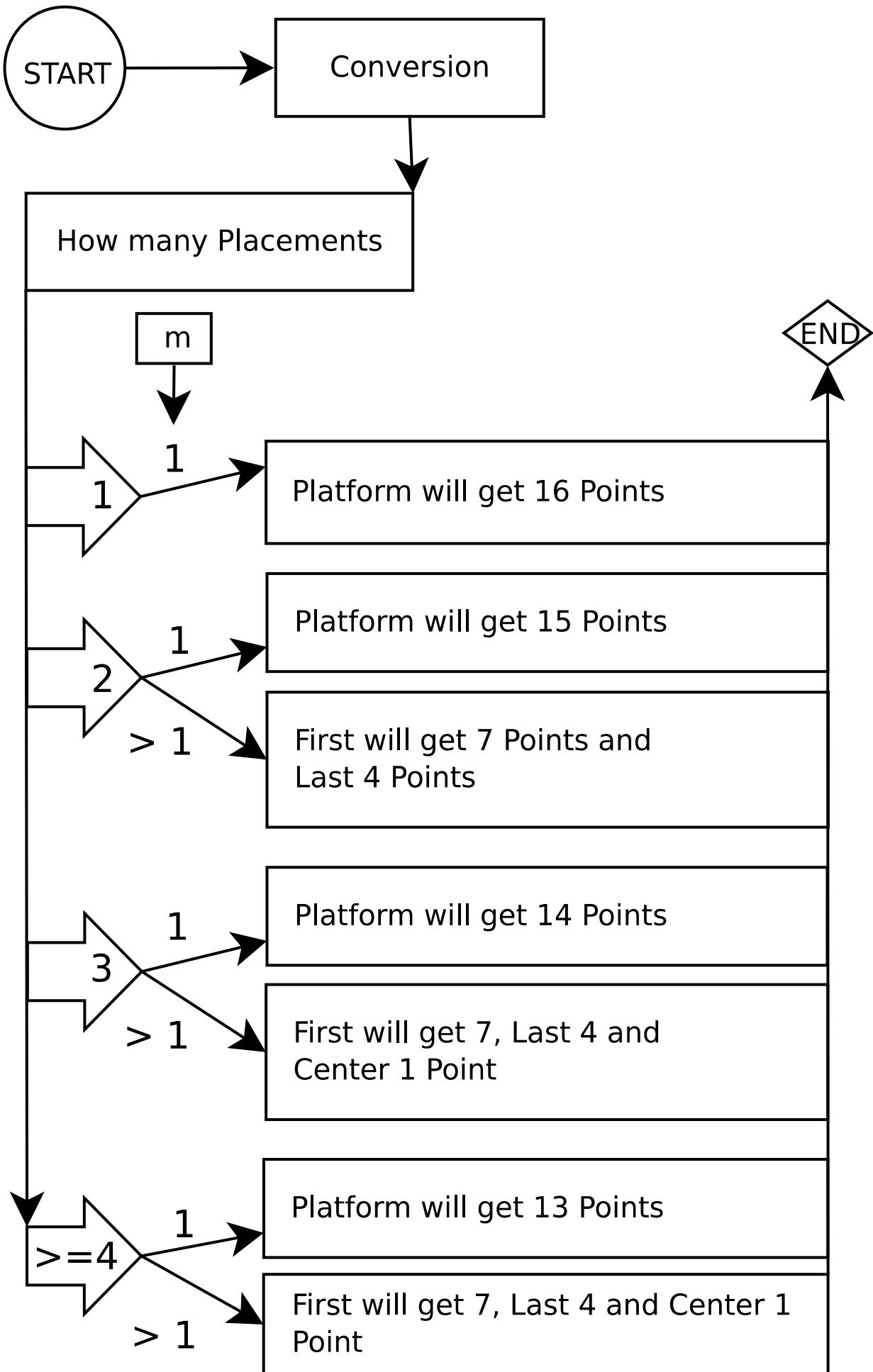
$platform_3 = 12 \text{ Points}$

$platform_1 = 1 \text{ Point}$

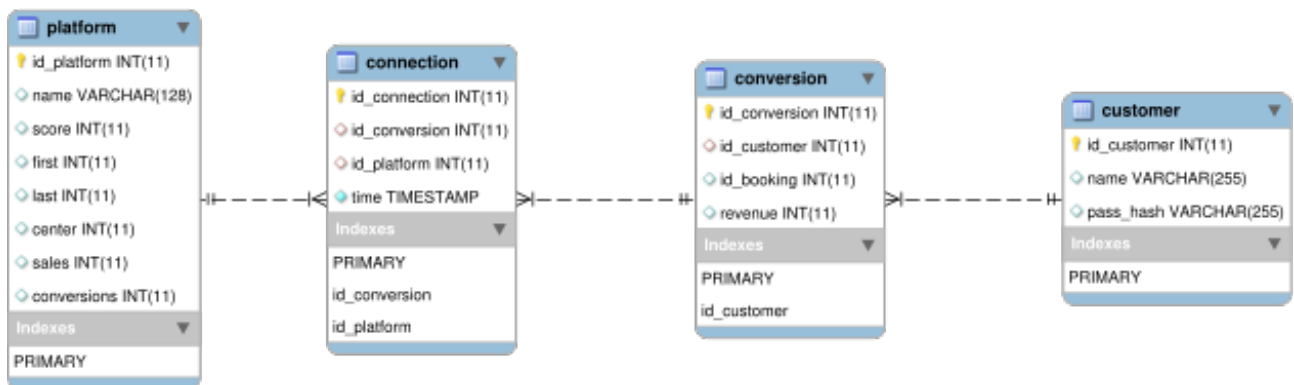
$platform_9 = 1 \text{ Point}$

$platform_5 = 2 \text{ Point}$

$platform_4 = 1 \text{ Point}$

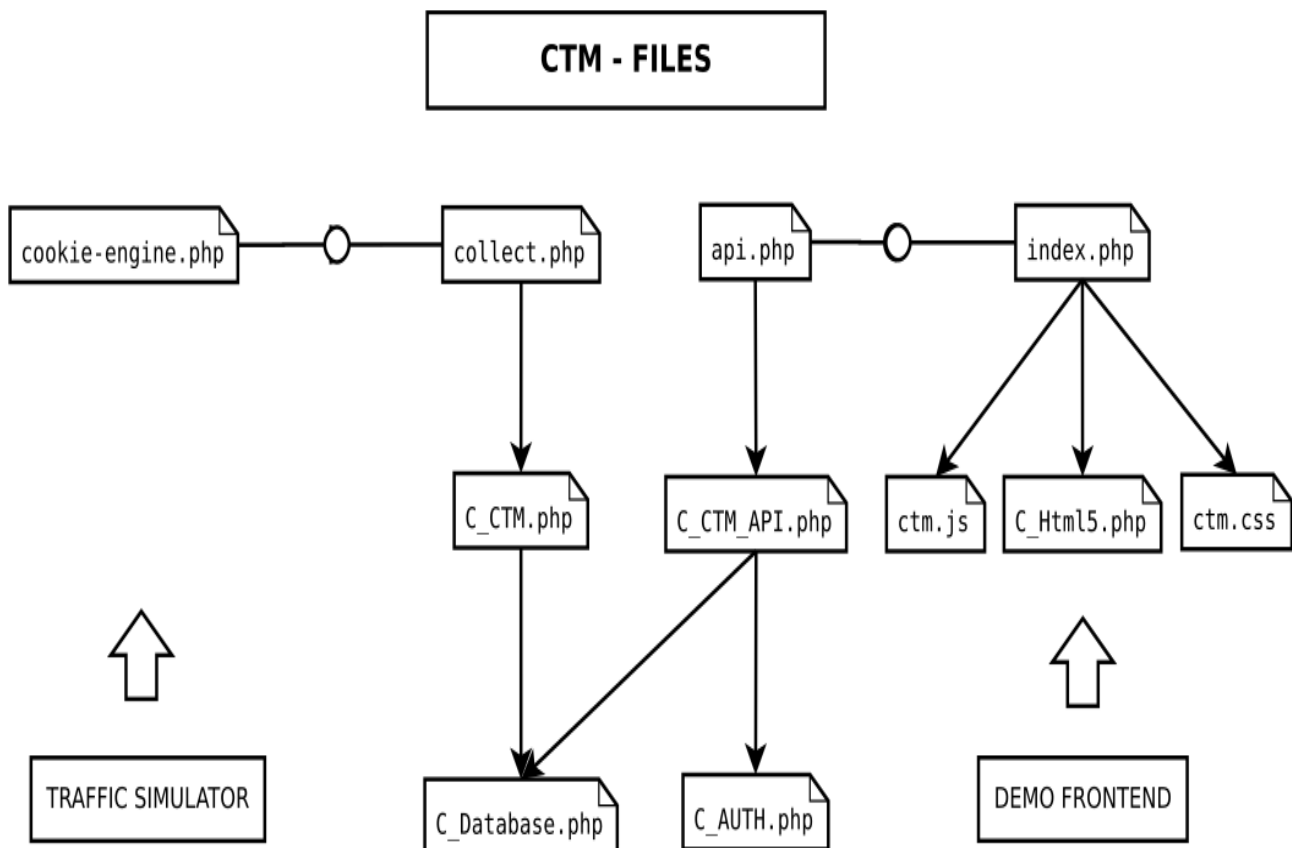


## 3. Database Model

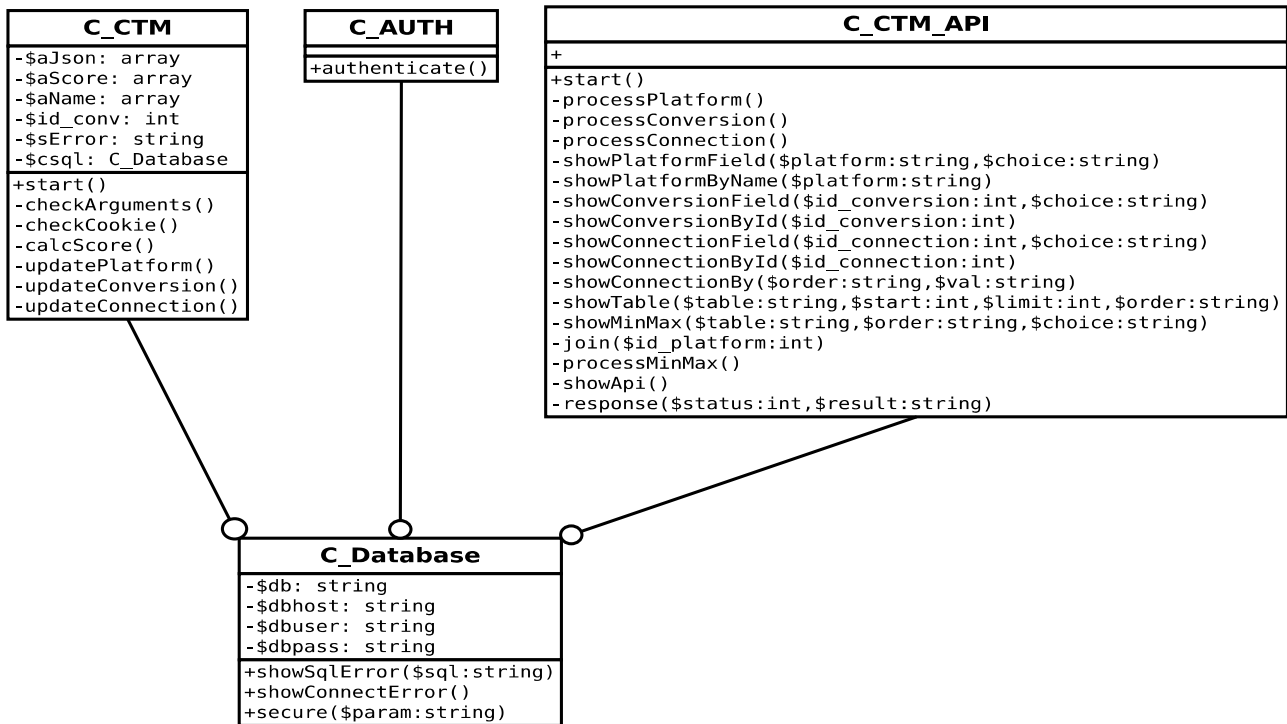


## 4. Software Model

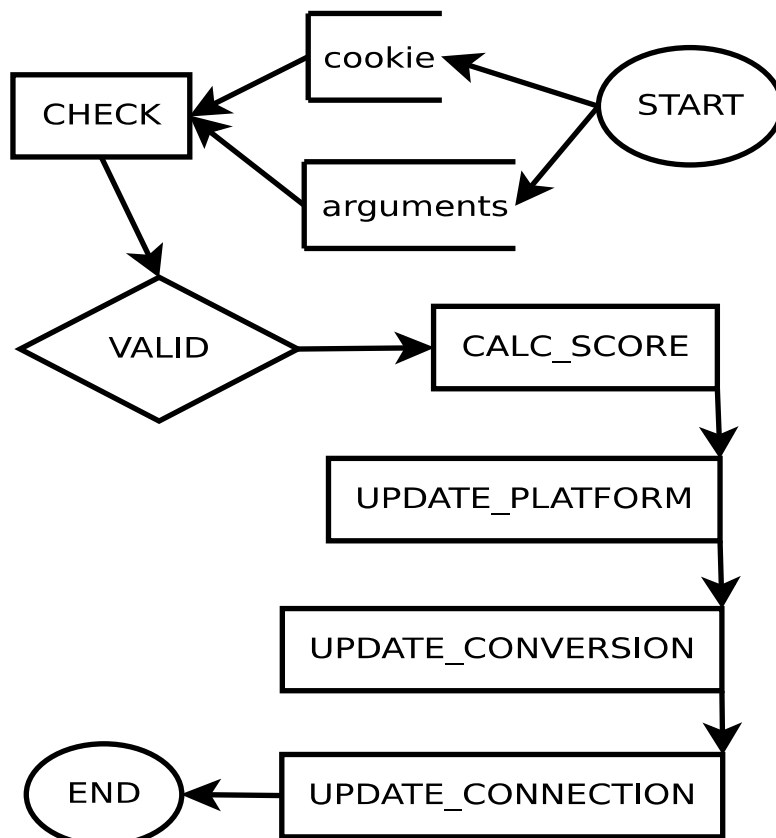
### 4.1 Files



## 4.2 Classes

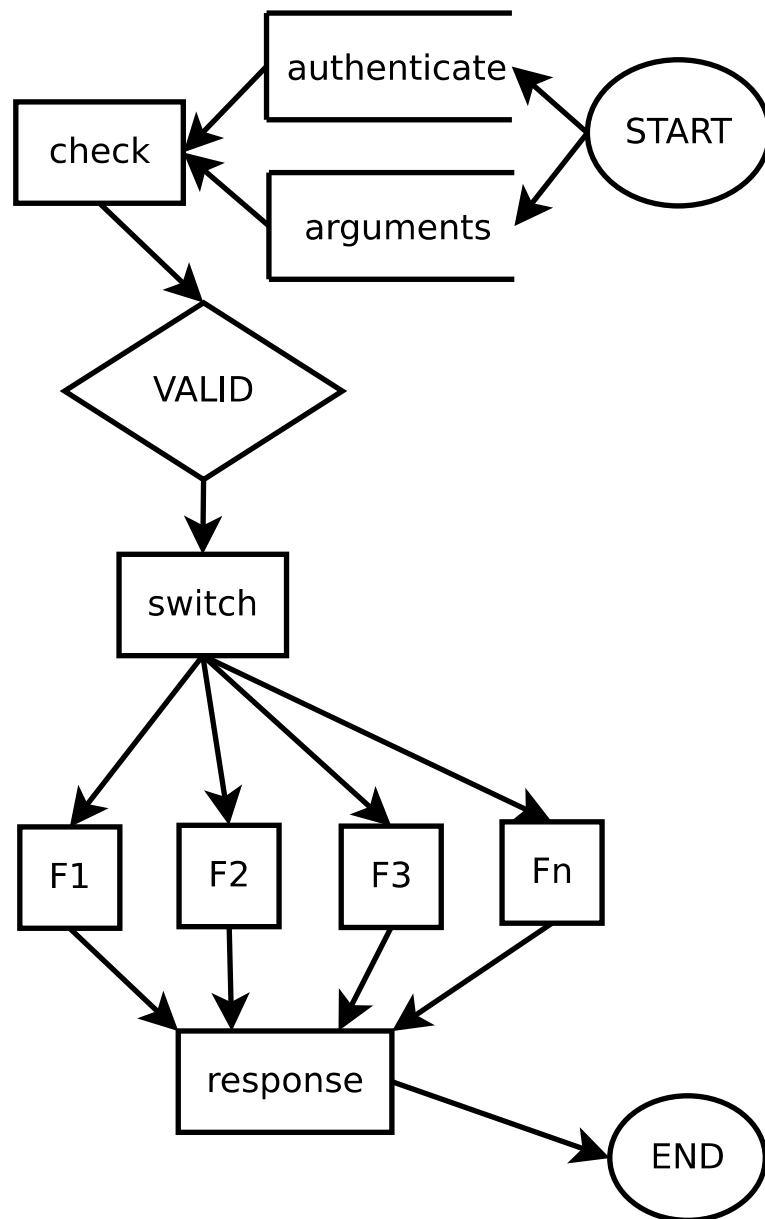


## 4.3 Collect





#### 4.4 Api



## 5. API Documentation

URL	/get
REAL URL	/api.php
RETURN	API LIST

URL	/get/(\$1)
REAL URL	/api.php?(\$1)=all
RETURN	SELECT FORM TABLE \$1 LIMIT 0, 100

URL	/get/platform/(\$1)
REAL URL	/api.php?platform=(\$1)
RETURN	Full Data from platform with name == \$1

URL	/get/platform/(\$1)/(\$2)
REAL URL	/api.php?platform=(\$1)&request=(\$2)
RETURN	SELECT \$2 from Platform with name == \$1

URL	/get/conversion/(\$1)
REAL URL	/api.php?conversion=\$1"
RETURN	Full Data from conversion with id == \$1

URL	/get/conversion/(\$1)/(\$2)
REAL URL	/api.php?conversion=all&start=\$1&limit=\$2
RETURN	TABLE LIMIT \$1, \$2

URL	/get/conversion/(\$1)/(\$2)/(\$3)
REAL URL	/api.php?conversion=all&start=\$1&limit=\$2&order=\$3
RETURN	TABLE LIMIT \$1, \$2 ORDER BY \$3

URL	/get/max/(\$1)/(\$2)
REAL URL	/api.php?table=\$1&max=\$2
RETURN	MAX Value from table \$1 columns \$2

URL	/get/max/(\$1)/(\$2)
REAL URL	/api.php?table=\$1&max=\$2
RETURN	MIN Value from table \$1 columns \$2

URL	/get/join/(\$1)
REAL URL	/api.php?join=\$1
RETURN	INNER JOIN FROM conversion with connection WHERE connection.id_platform = \$1 GROUP BY conversion.id_conversion DESC LIMIT 0, 10;

URL	/get/connectby/(\$1)/(\$2)
REAL URL	/api.php?connectionby=\$1&val=\$2
RETURN	SELECT FROM connection WHERE \$1 = \$2

URL	/set/\$1/\$2/\$3
REAL URL	/collect.php?customerId=\$1&bookingNumber=\$2&revenue=\$3
RETURN	Result of cookie operation as json

## 5.1 Api Examples

URL	/get/conversion/1
RESULT	{"status":200,"result": {"id_conversion":"1","id_customer":"123","id_booking":"456", "rev_round":"89","rev_full":"8900"}}

URL	/get/conversion/1/id_booking
RESULT	{"status":200,"result":{"id_conversion":"1","id_booking":"456"}}

URL	/get/platform/trivago
RESULT	{"status":200,"result": {"id_platform":"3","name":"trivago","score":"4075","first":"520", "last":"506","center":"1178","sales":"252802","conversions":"1845"}}

URL	/get/platform/trivago/score
RESULT	{"status":200,"result":{"platform":"trivago","score":"4075"}}

URL	/get/max/platform/score
RESULT	<pre>{"status":200,"result": {"id_platform":"3","name":"trivago","score":"4075","first":"520", "last":"506","center":"1178","sales":"252802","conversions":"1845"}}</pre>

URL	/get/platform/2/2
RESULT	<pre>{"status":200,"result": [{"id_platform":"1","name":"amazon","score":"3704","first":"468", "last":"442","center":"1134","sales":"220217","conversions":"1768"}, {"id_platform":"2","name":"kayak","score":"3642","first":"438", "last":"457","center":"1141","sales":"231943","conversions":"1766"}] }</pre>

URL	/get/platform/2/2/score
RESULT	<pre>{"status":200,"result": [{"id_platform":"2","name":"kayak","score":"3642","first":"438", "last":"457","center":"1141","sales":"231943","conversions":"1766"}, {"id_platform":"6","name":"instagram","score":"3668","first":"451", "last":"450","center":"1165","sales":"217897","conversions":"1784"}] }</pre>

URL	/get/connectby/id_conversion/1
RESULT	<pre>{"status":200,"result": [{"id_connection":"138325","id_conversion":"1","id_platform":"1", "time":"1514811600"}, {"id_connection":"138326","id_conversion":"1","id_platform":"2", "time":"1514984400"}, {"id_connection":"138327","id_conversion":"1","id_platform":"3", "time":"1515157200"}, {"id_connection":"138328","id_conversion":"1","id_platform":"4", "time":"1515330000"}, {"id_connection":"138329","id_conversion":"1","id_platform":"5", "time":"1515416400"}, {"id_connection":"138330","id_conversion":"1","id_platform":"1", "time":"1515502800"}]}</pre>

URL	/set/123/456/99.99
RESULT	<pre>{"status":200,"result":1}</pre>