



Private Ad Measurement

Advertising Events

Impressions

Viewing, clicking on, hearing, etc

— somehow encountering an advertisement

Conversions

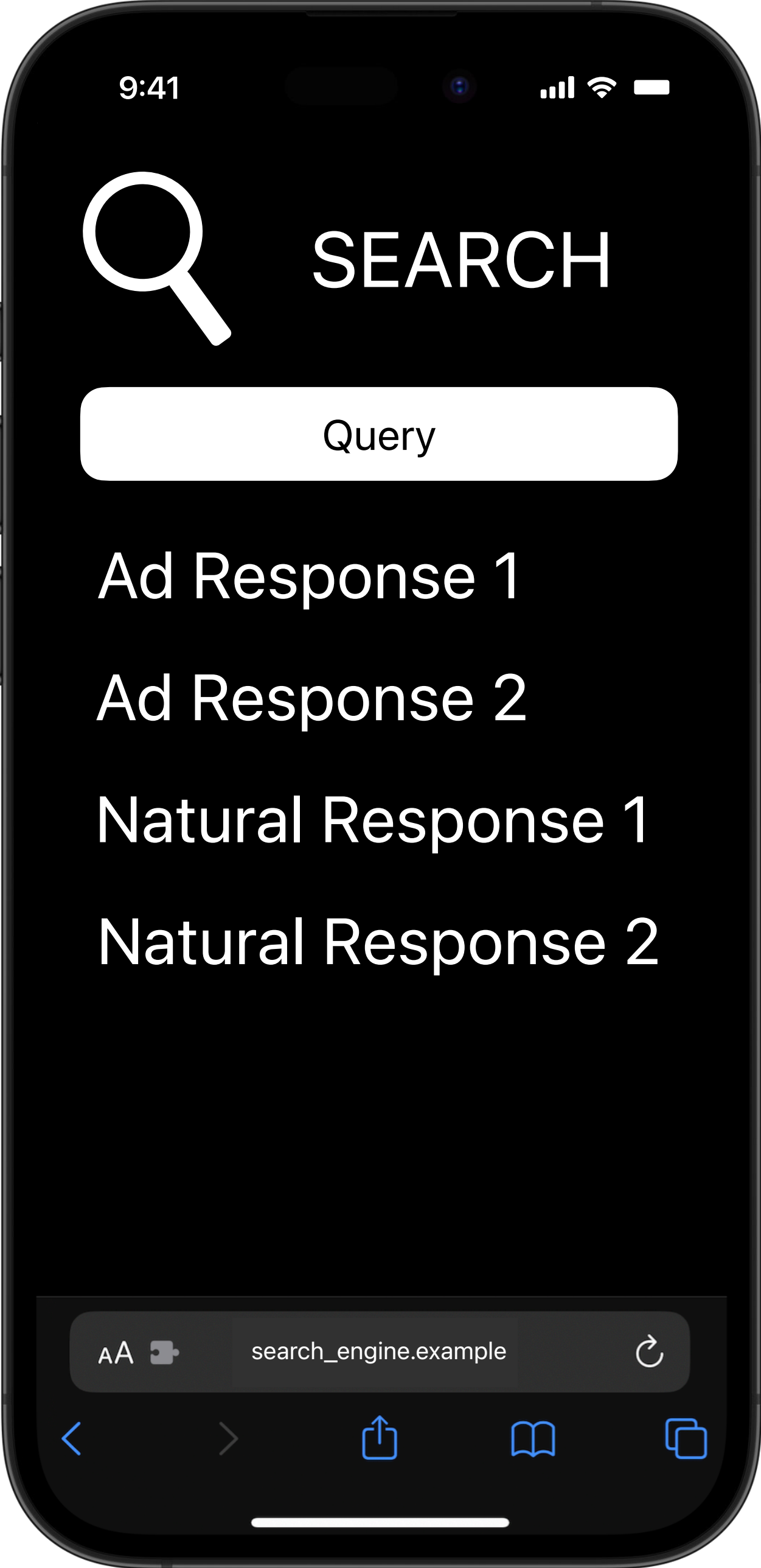
Downloading, buying, visiting, etc

— doing something and advertiser hopes you will

What we want to accomplish

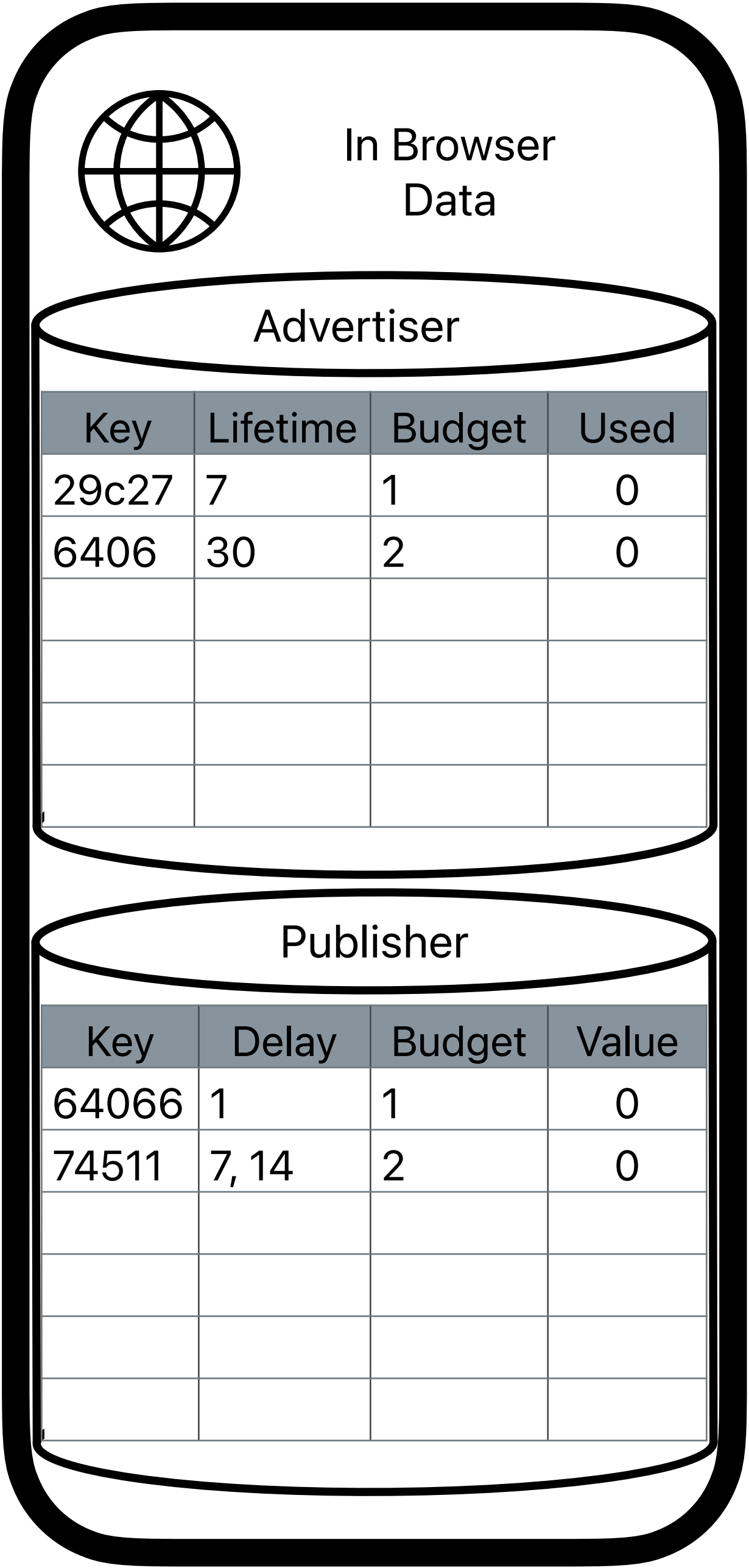
Measuring what fraction of each conversion can be attributed to which advertisements in aggregate

i.e. where advertising dollars are most effective



Ad ID Key	Lifetime	Budget
29c27	7 days	1 allowed use
Publisher Ad ID	Report delay	Budget
4fe3d	1 day	1 allowed use

Ad ID Key	Lifetime	Budget
64066	30 days	2 allowed uses
Publisher Ad ID	Report delay	Budget
74511	7, 14 days	2 allowed uses



9:41

News Headline

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.



Advertisement

Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat

AA

news.example



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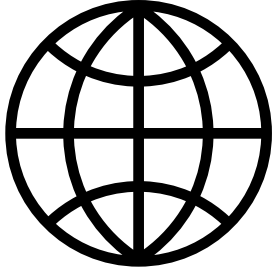






Ad ID Key	Lifetime	Budget
031f6	14 days	1 allowed use

Publisher Ad ID	Report delay	Budget
6c2f3	2 days	1 allowed use



In Browser Data

Advertiser

Key	Lifetime	Budget	Used
29c27	7	1	0
6406	30	2	0

Publisher

Key	Delay	Budget	Value
64066	1	1	0
74511	7, 14	2	0

9:41

News Headline

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.



Advertisement

Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat

AA

news.example



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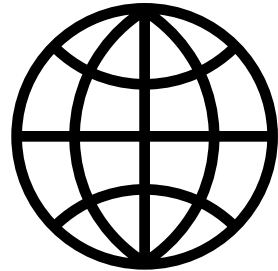






Ad ID Key	Lifetime	Budget
031f6	14 days	1 allowed use

Publisher Ad ID	Report delay	Budget
6c2f3	2 days	1 allowed use



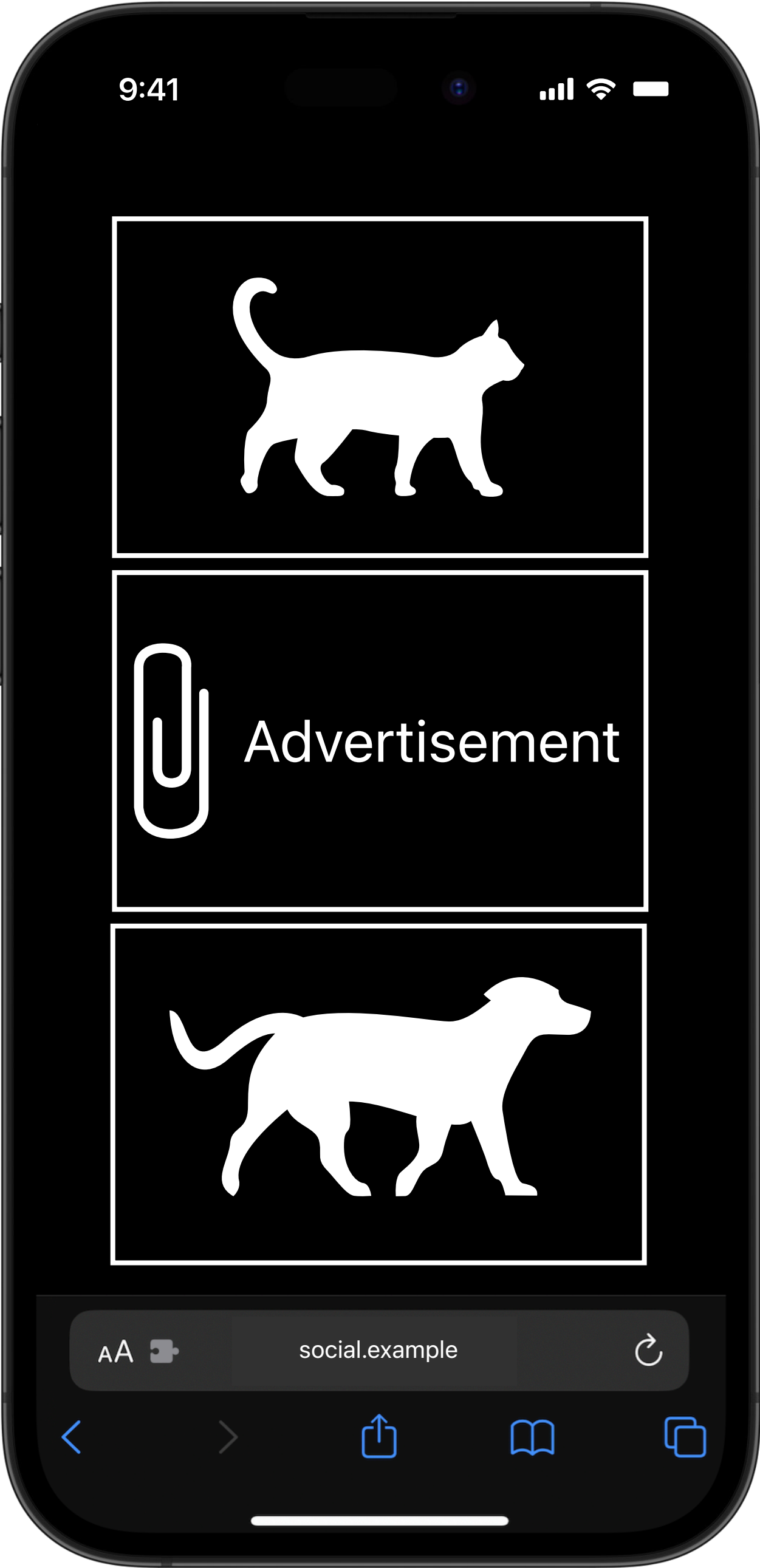
In Browser
Data

Advertiser

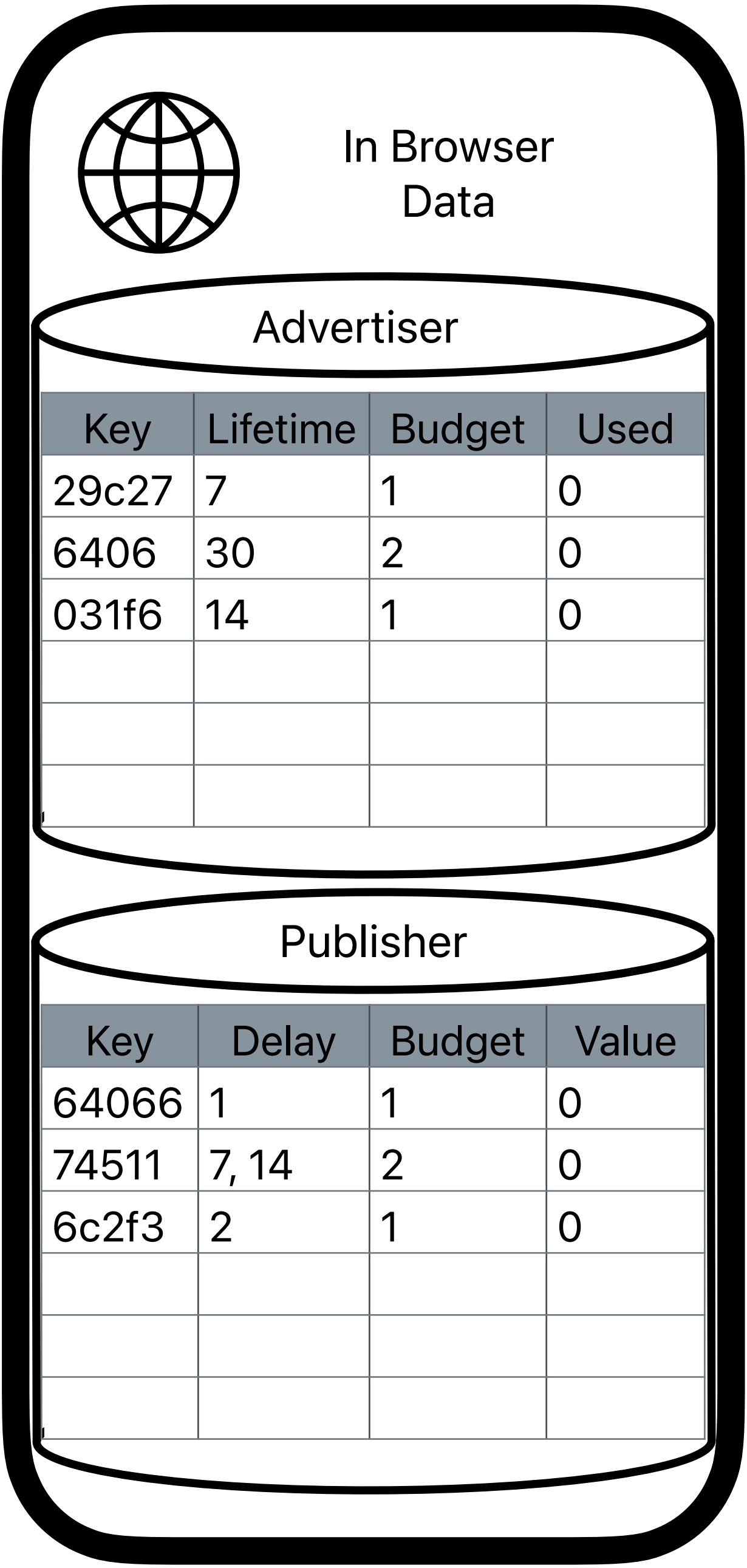
Key	Lifetime	Budget	Used
29c27	7	1	0
6406	30	2	0
031f6	14	1	0

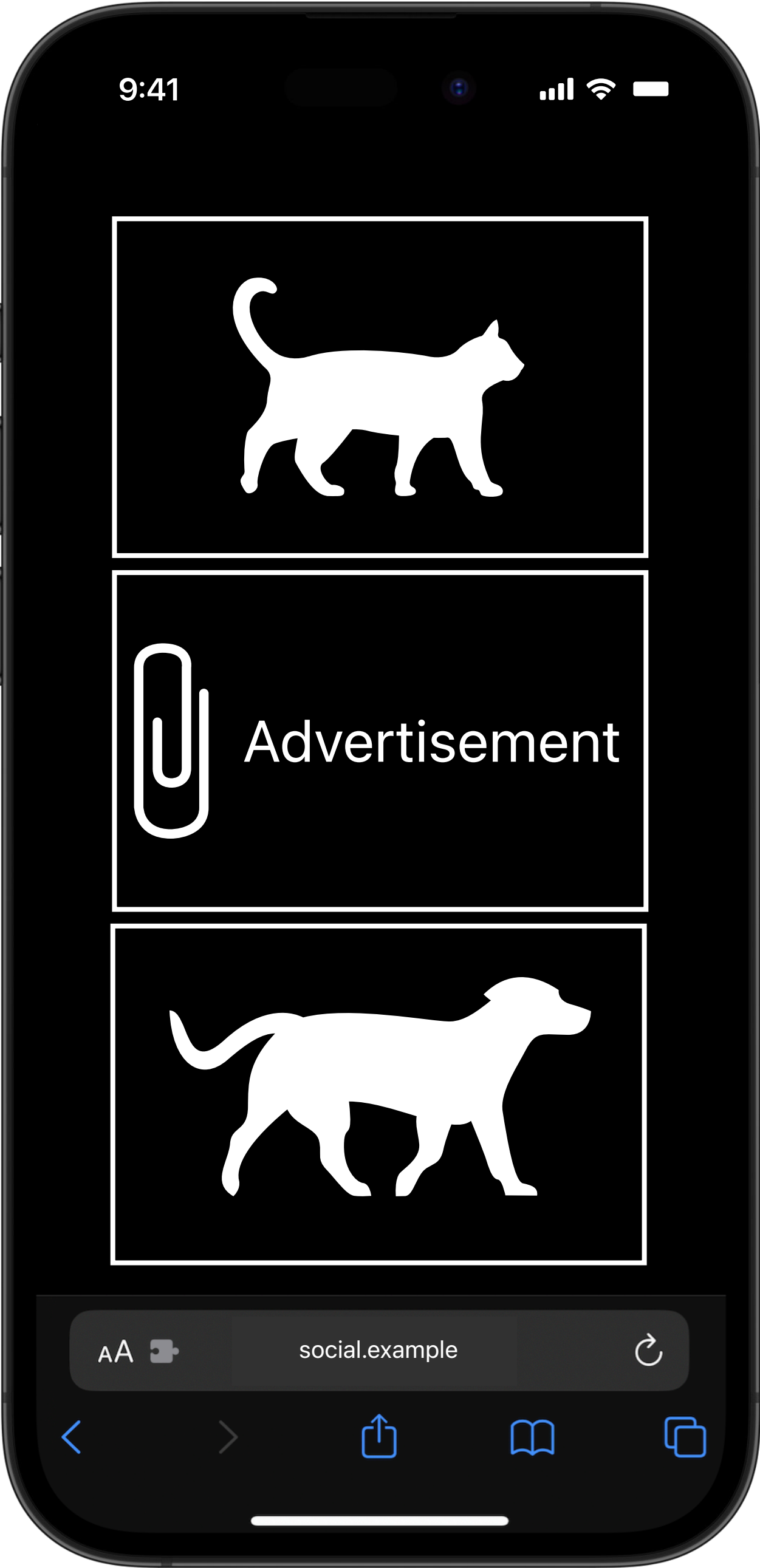
Publisher

Key	Delay	Budget	Value
64066	1	1	0
74511	7, 14	2	0
6c2f3	2	1	0

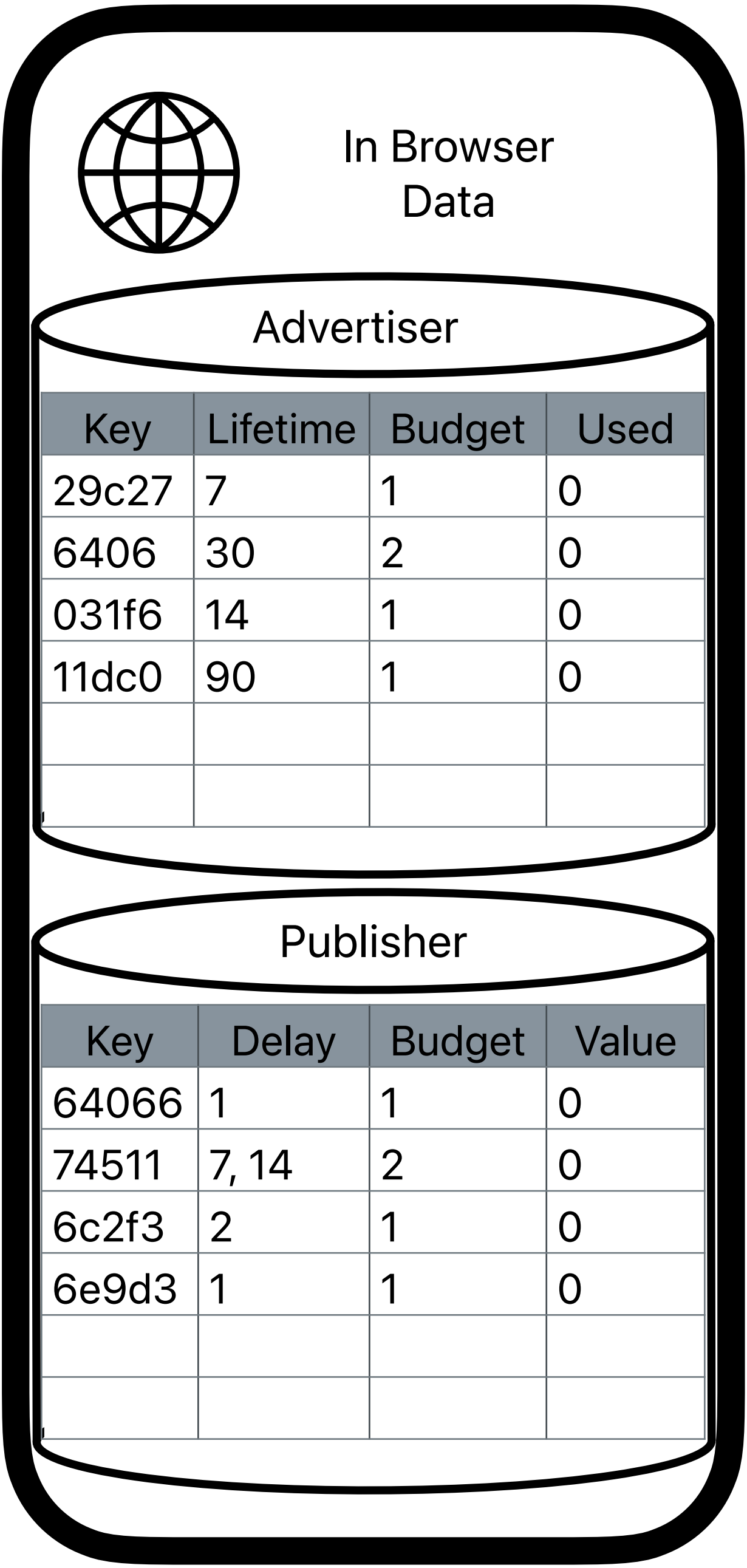


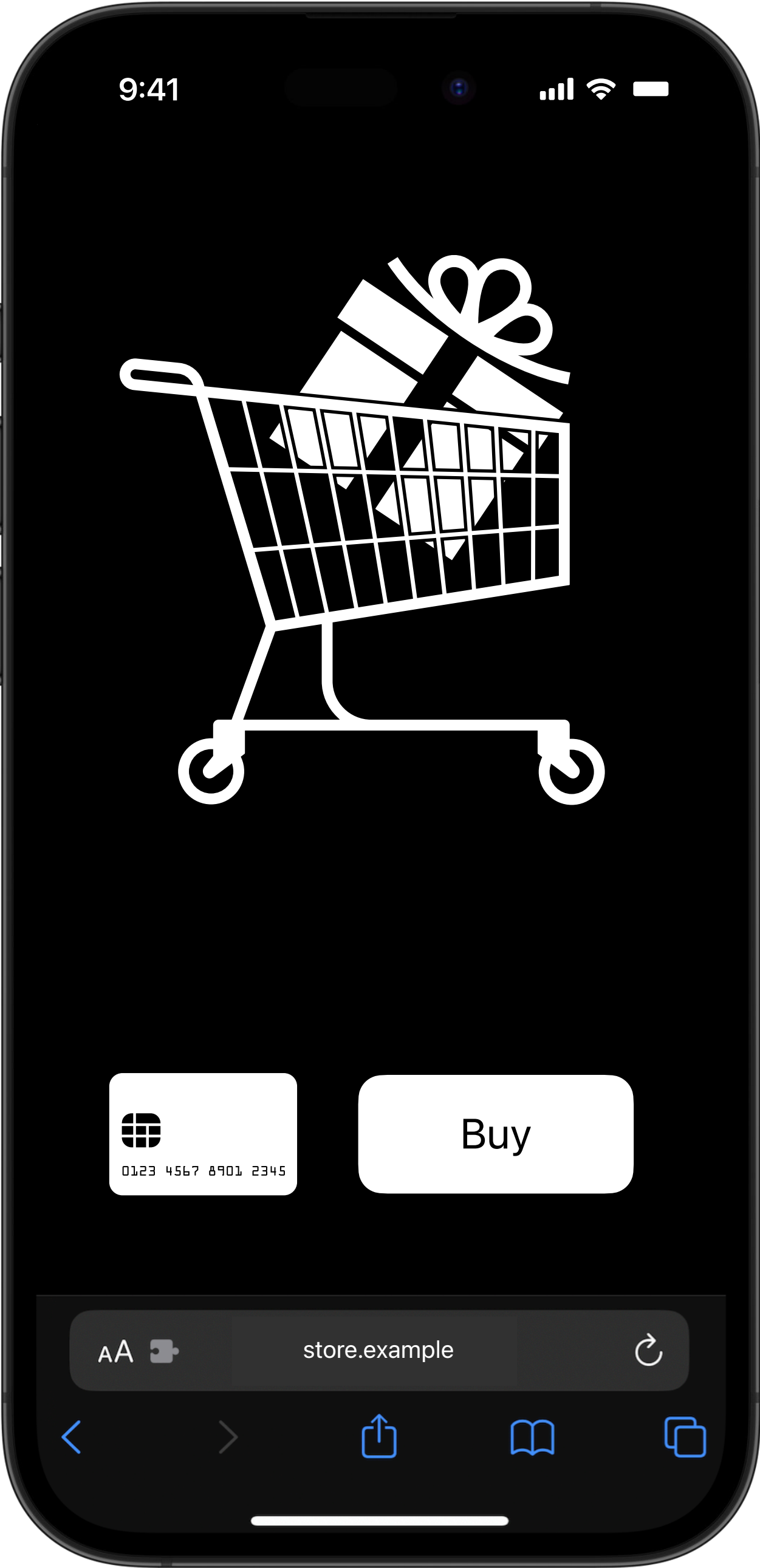
Ad ID Key	Lifetime	Budget
11dc0	90 days	1 allowed use
Publisher Ad ID	Report delay	Budget
6e9d3	1 days	1 allowed use

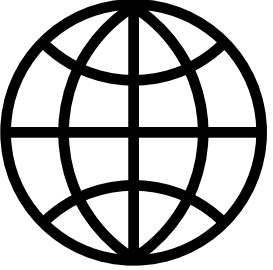




Ad ID Key	Lifetime	Budget
11dc0	90 days	1 allowed use
Publisher Ad ID	Report delay	Budget
6e9d3	1 days	1 allowed use







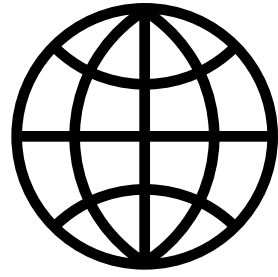
In Browser
Data

Advertiser

Key	Lifetime	Budget	Used
29c27	7	1	0
6406	30	2	0
031f6	14	1	0
11dc0	90	1	0

Publisher

Key	Delay	Budget	Value
64066	1	1	0
74511	7, 14	2	0
6c2f3	2	1	0
6e9d3	1	1	0



In Browser Data

Advertiser

Key	Lifetime	Budget	Used
29c27	7	1	0
6406	30	2	0
031f6	14	1	0
11dc0	90	1	0

Publisher

Key	Delay	Budget	Value
64066	1	1	0
74511	7, 14	2	0
6c2f3	2	1	0
6e9d3	1	1	0

Conversion Aggregation ID

ef769

Histogram Mapping

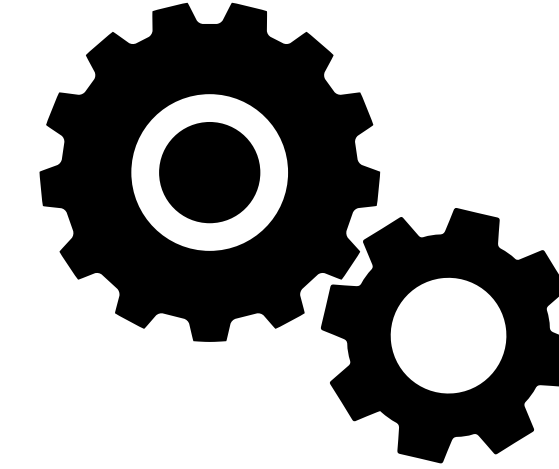
Ad Join Key	Bin
29c27	0
031f6	1
11dc0	2
578f2	2
db518	3

Budget

1

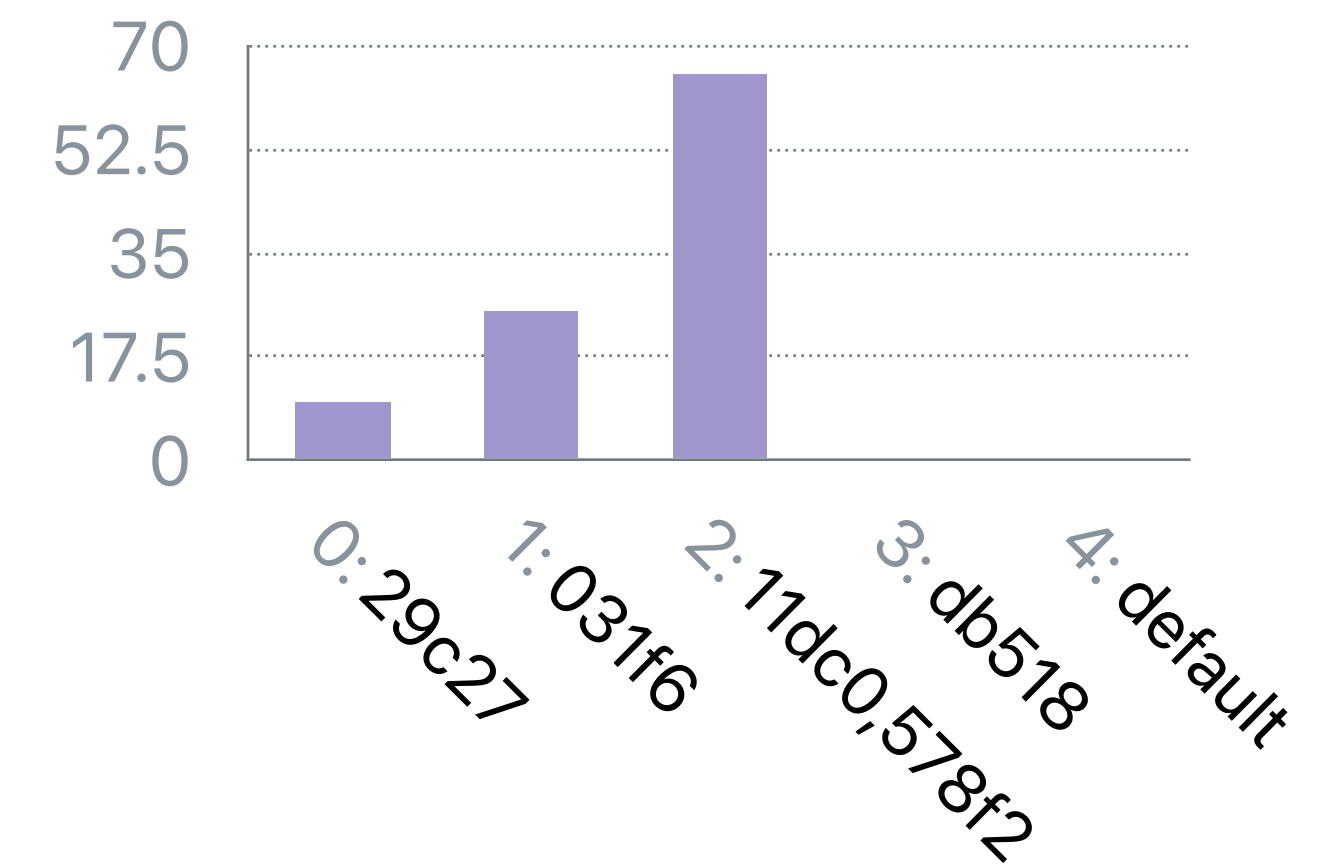
Attribution Logic

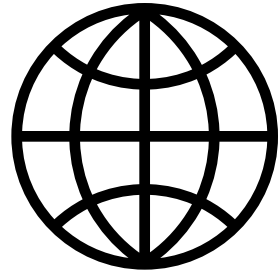
Custom



In Browser Ad Attribution

Conversion ID ef769





In Browser Data

Advertiser

Key	Lifetime	Budget	Used
29c27	7	1	1
6406	30	2	0
031f6	14	1	1
11dc0	90	1	1

Publisher

Key	Delay	Budget	Value
64066	1	1	10
74511	7, 14	2	0
6c2f3	2	1	25
6e9d3	1	1	65

Conversion Aggregation ID

ef769

Histogram Mapping

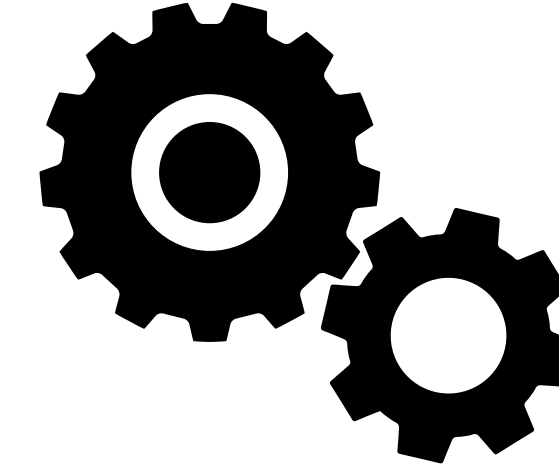
Ad Join Key	Bin
29c27	0
031f6	1
11dc0	2
578f2	2
db518	3

Budget

1

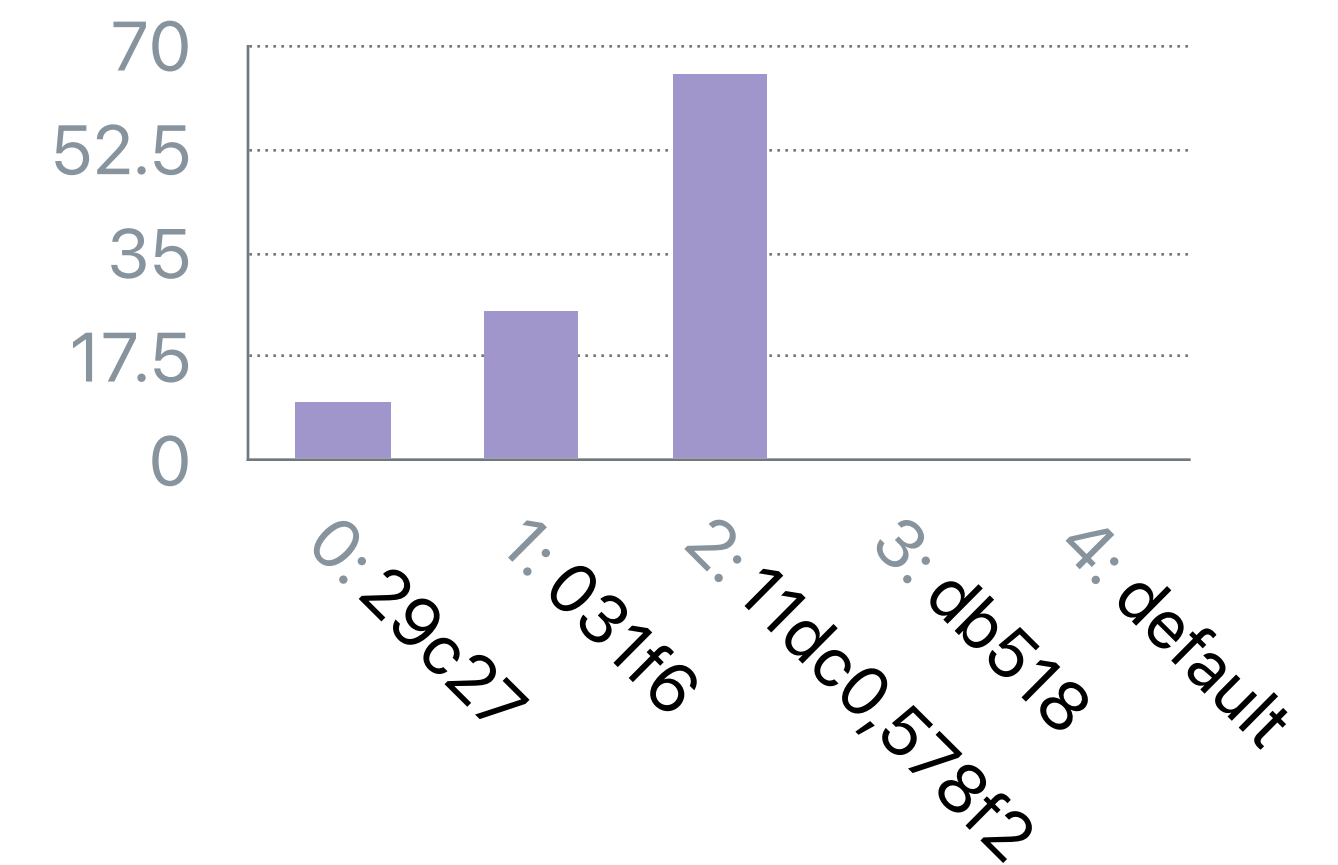
Attribution Logic

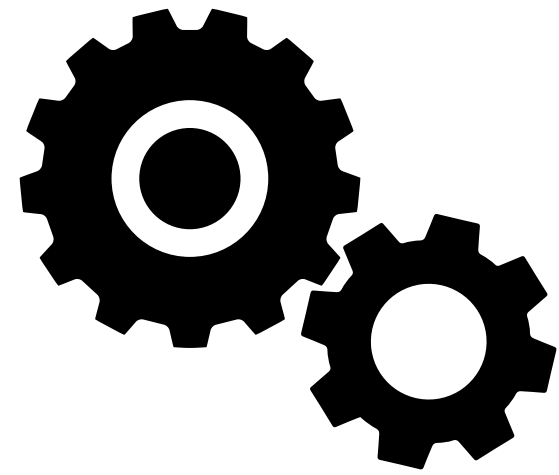
Custom



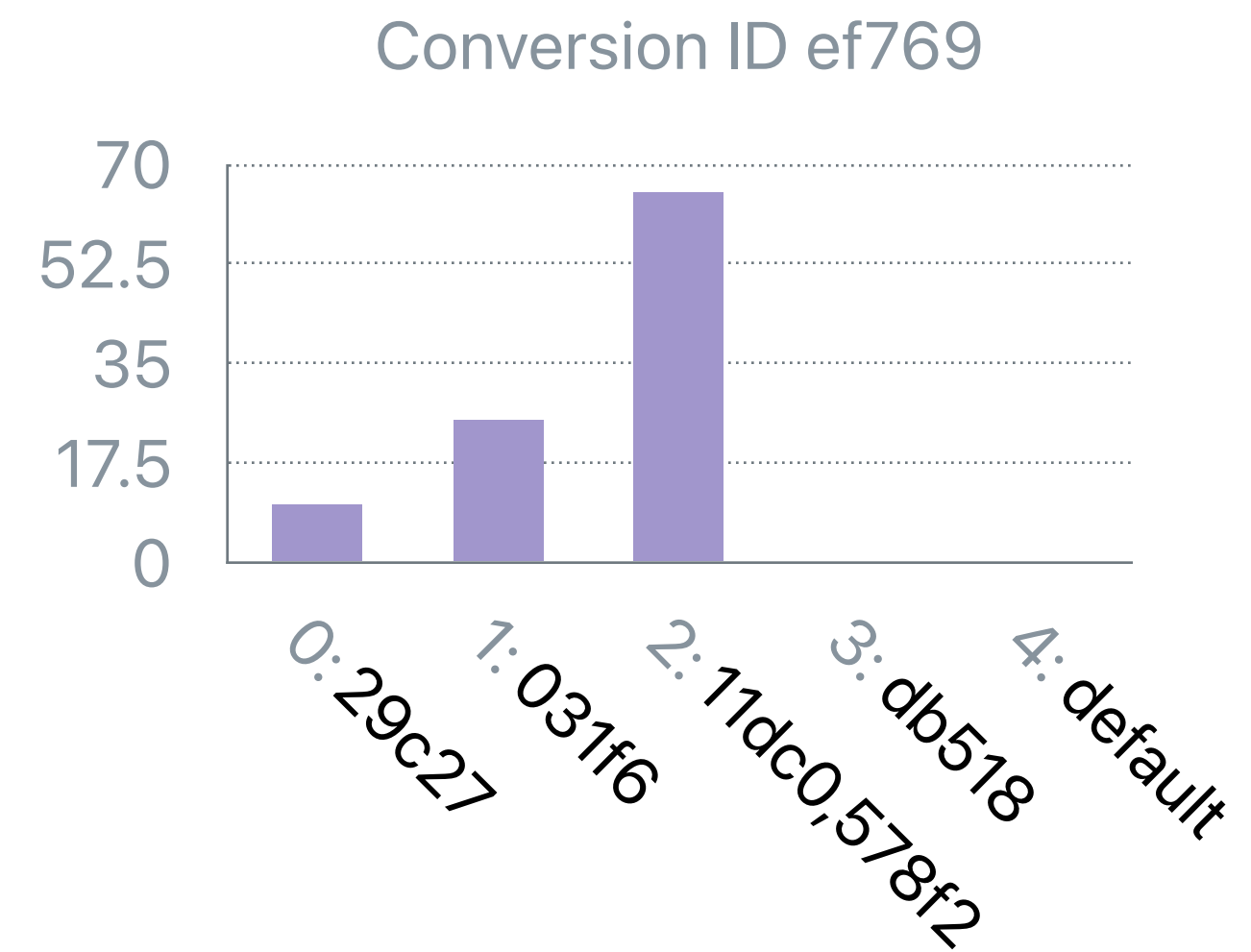
In Browser Ad Attribution

Conversion ID ef769



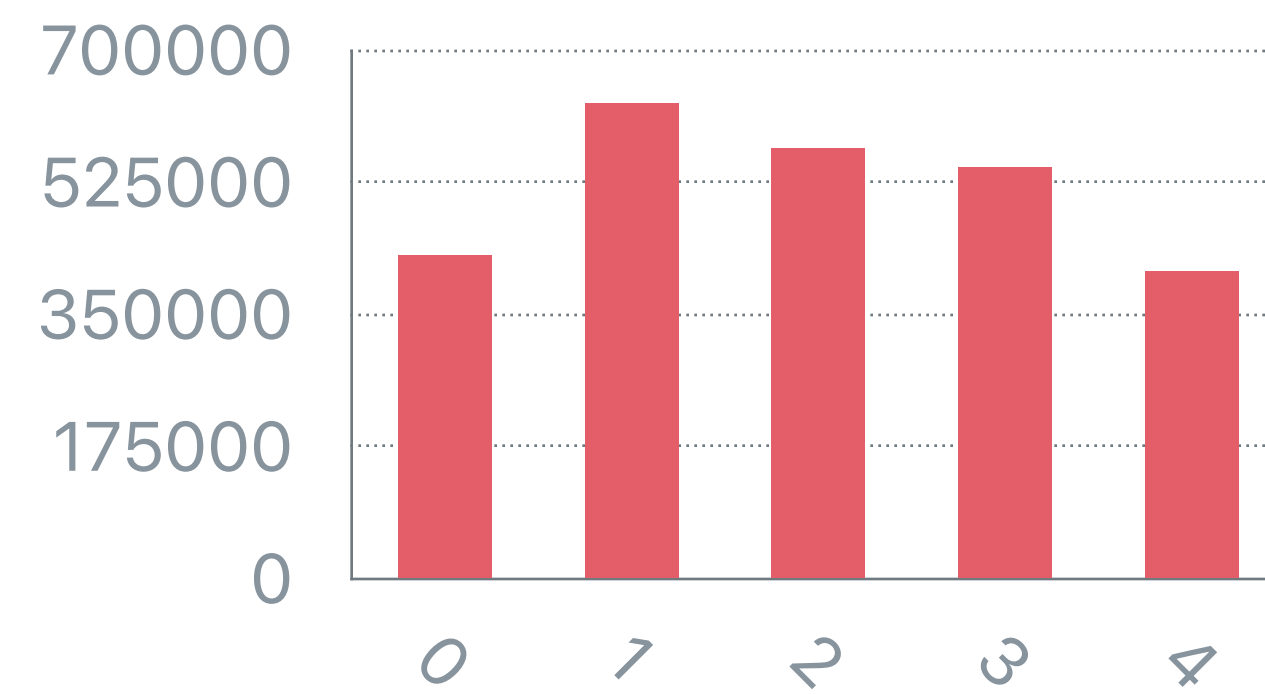


In Browser Ad Attribution

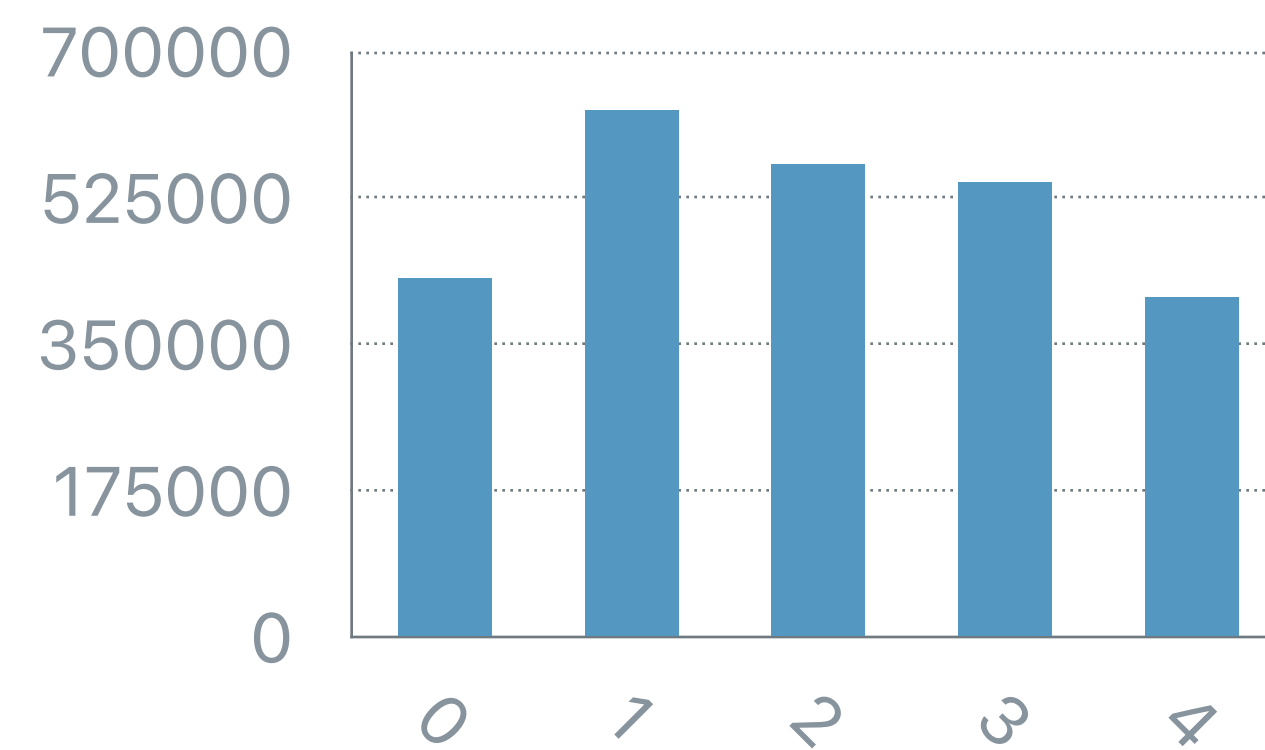


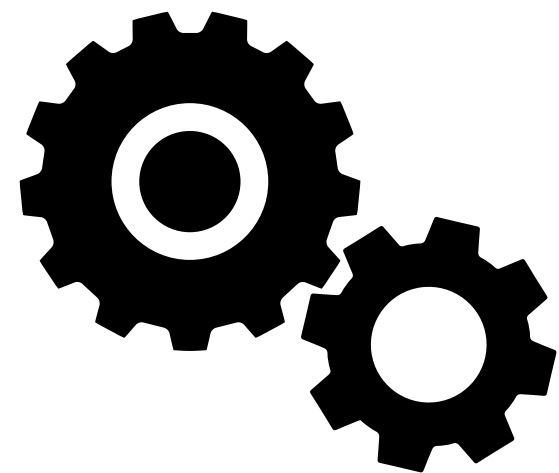
Building Prio Shares

Conversion ID ef769

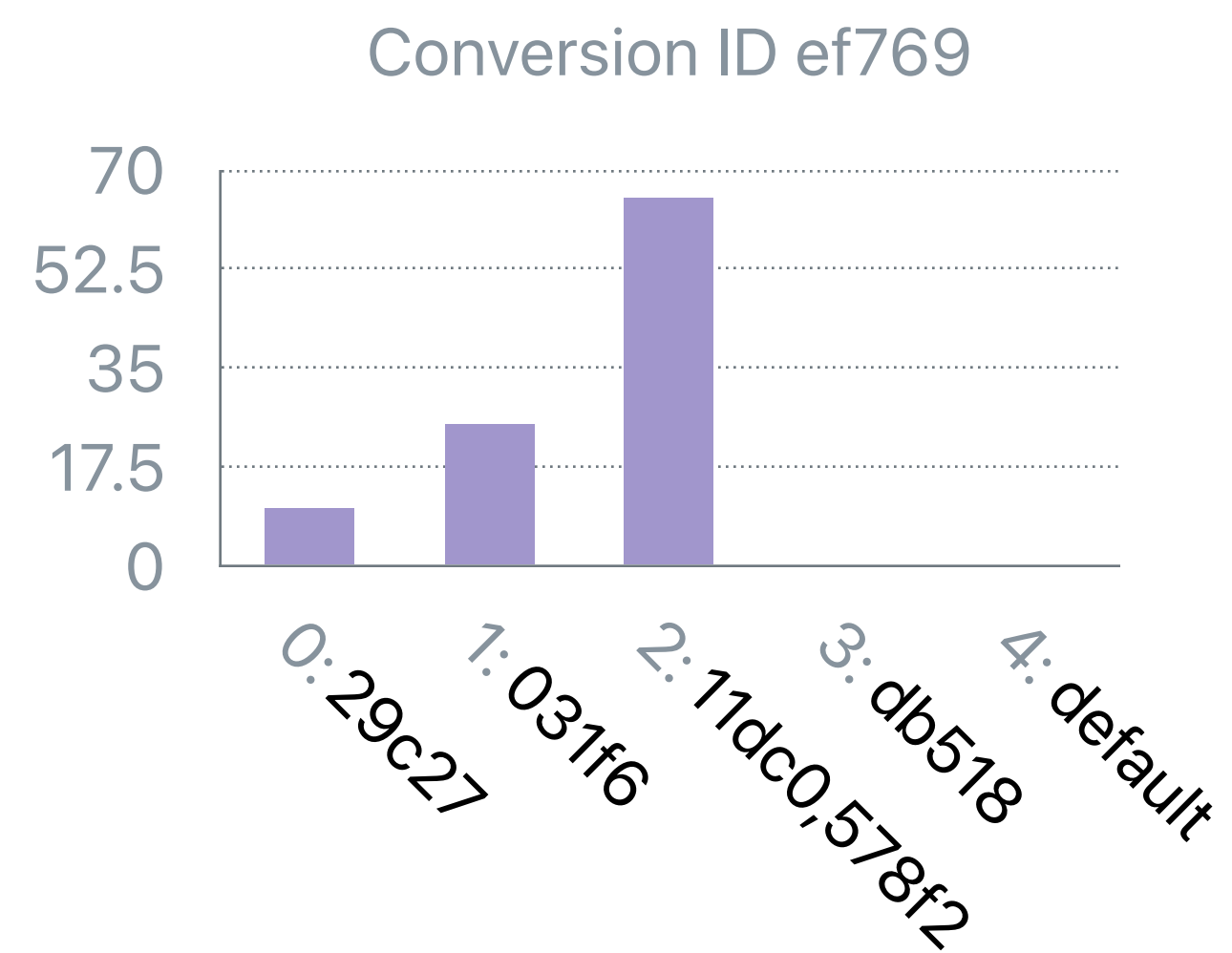


Conversion ID ef769

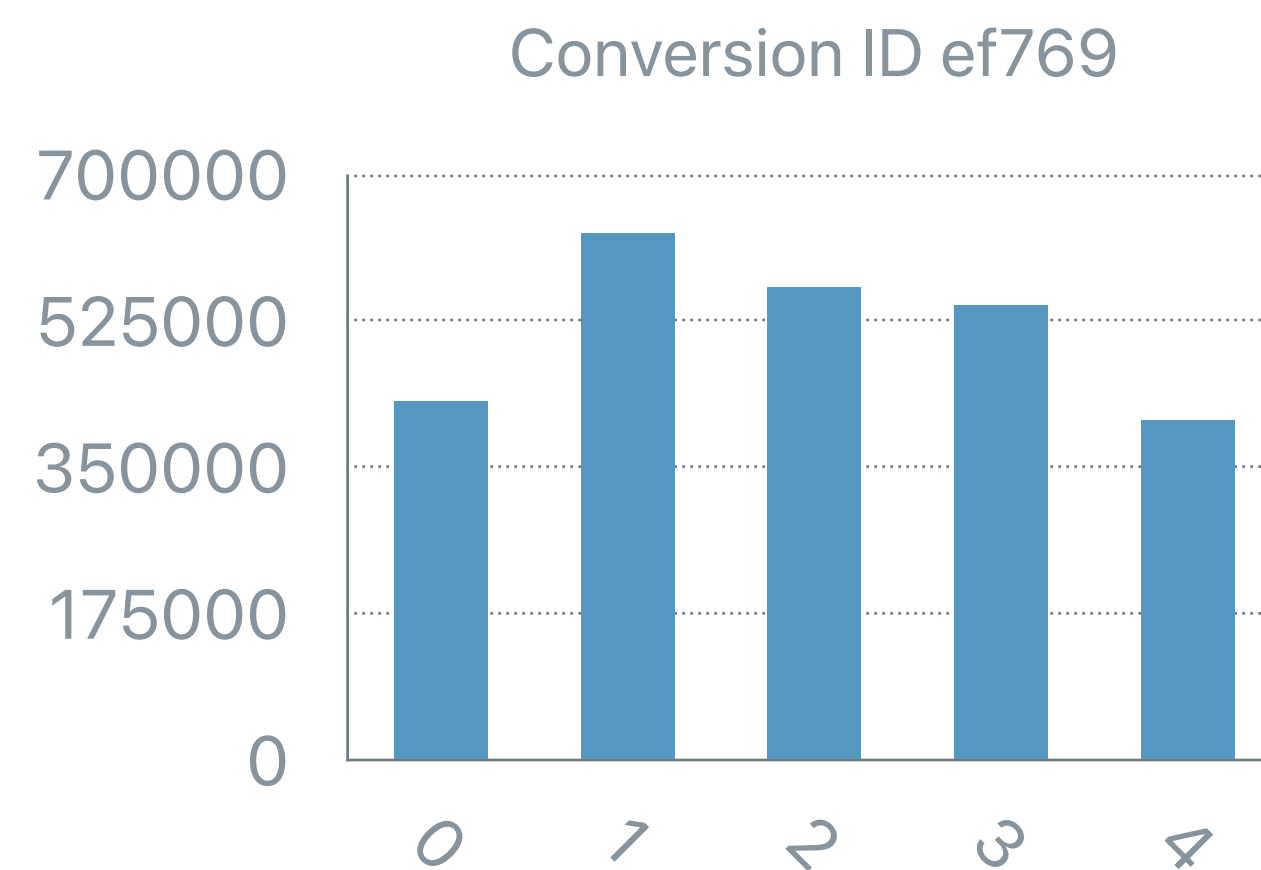
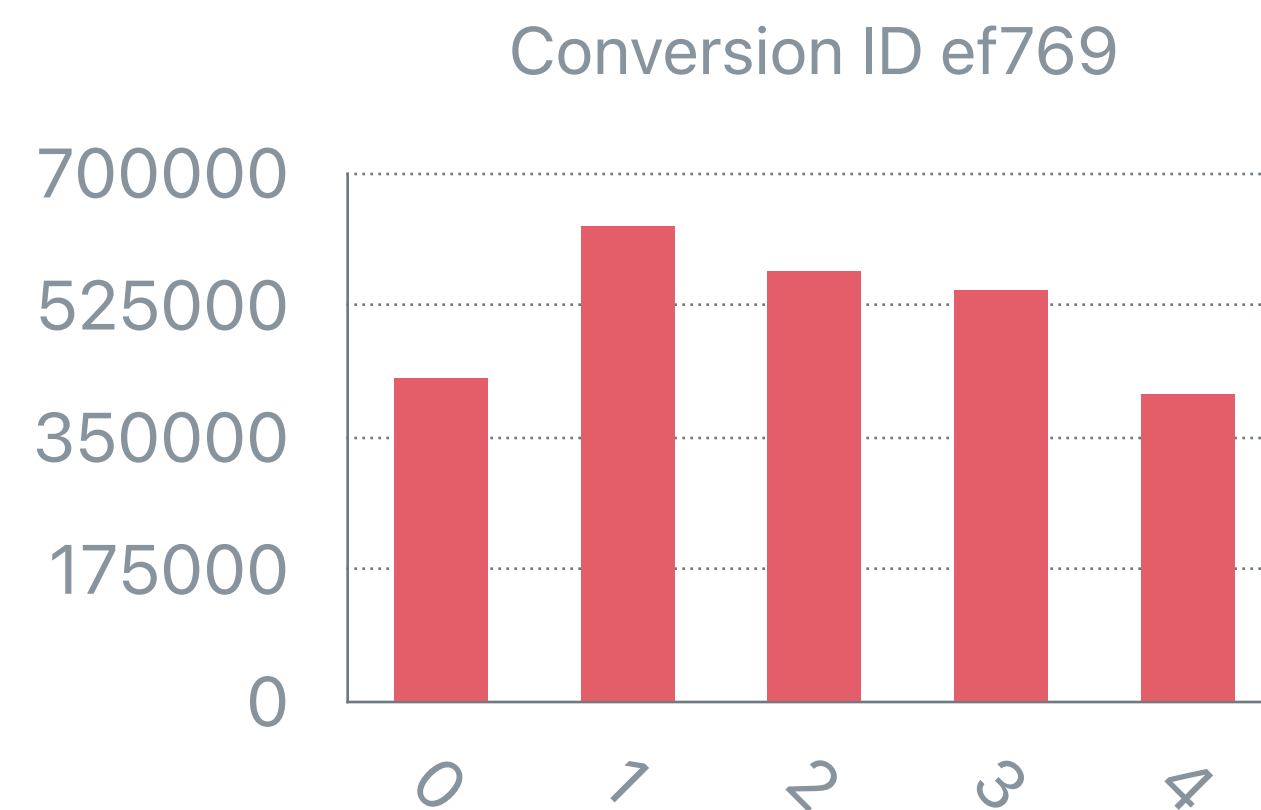




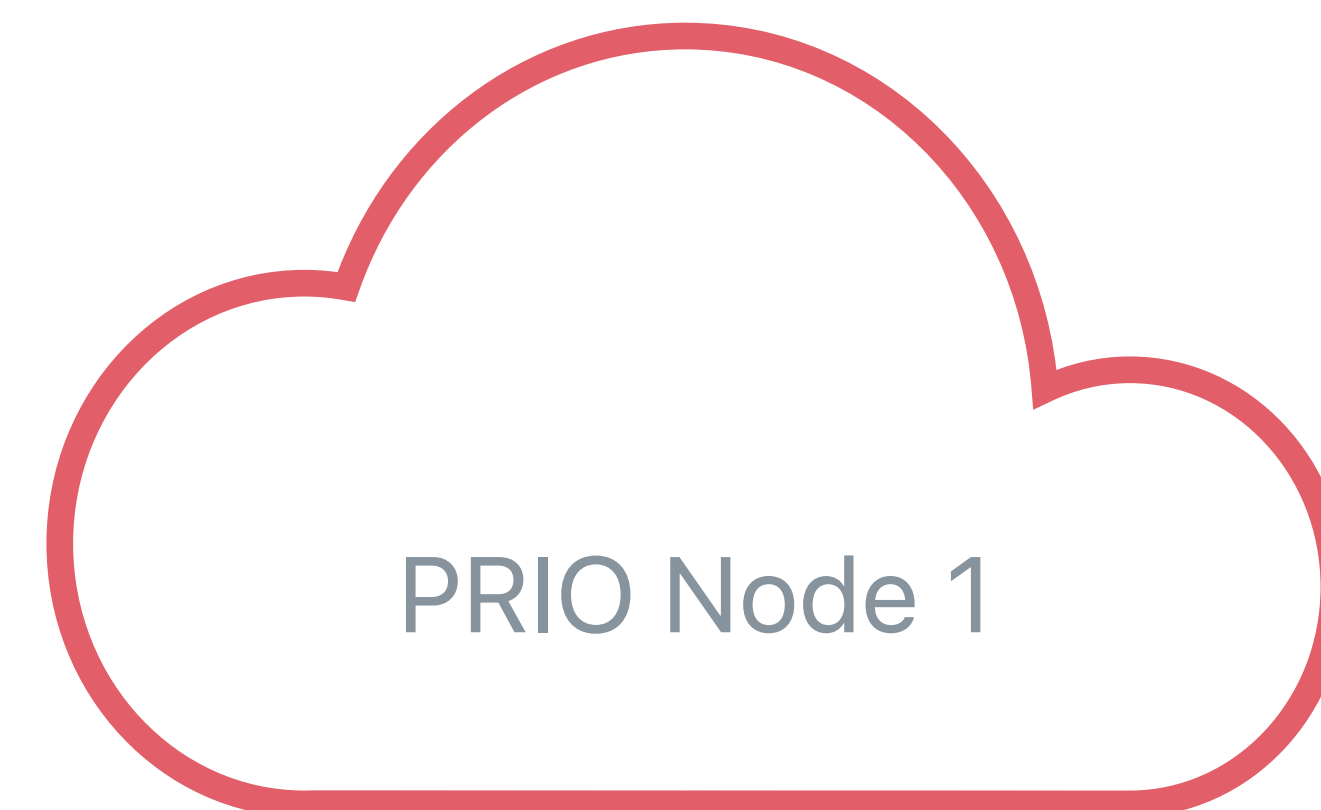
In Browser Ad Attribution

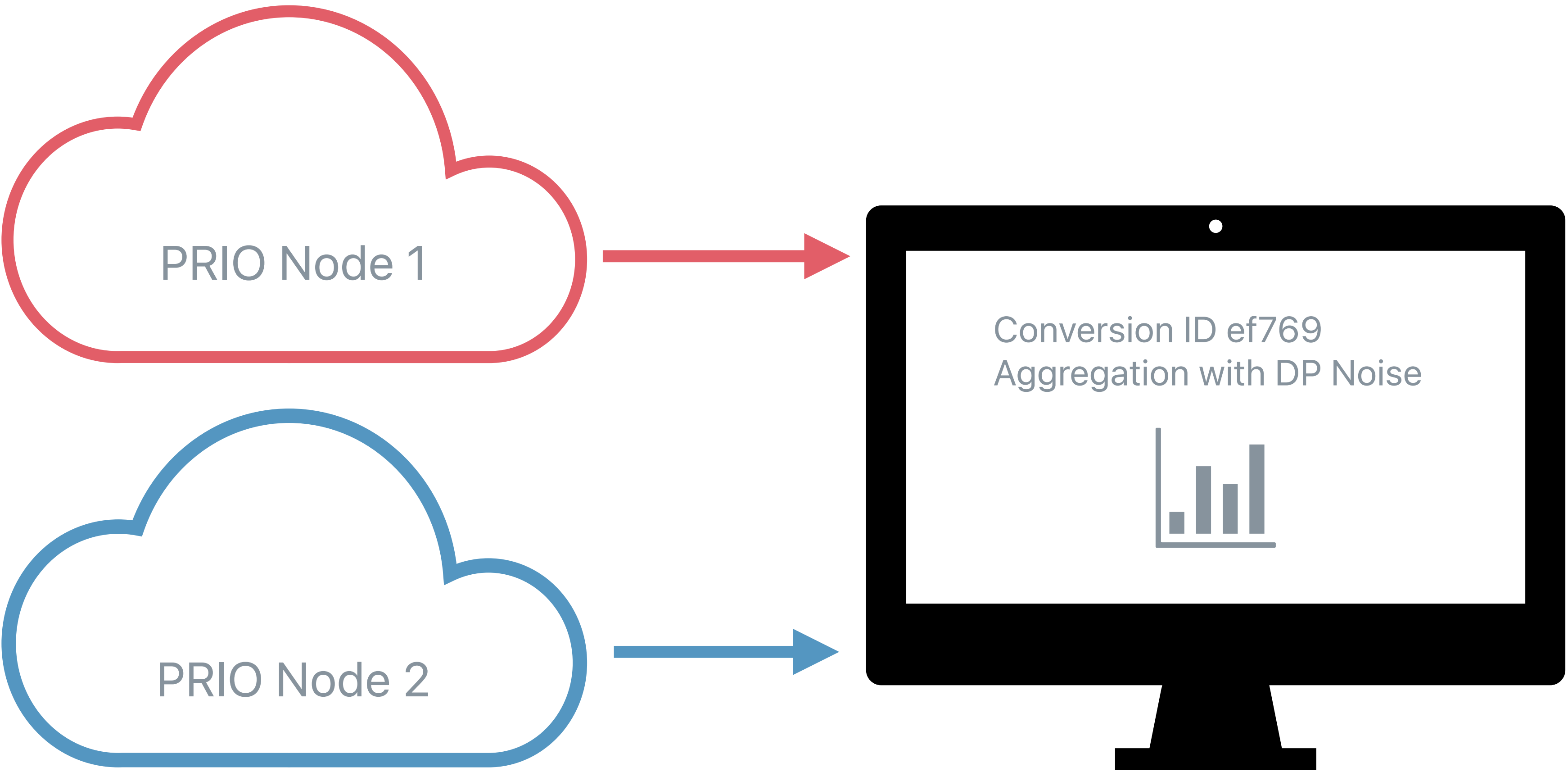


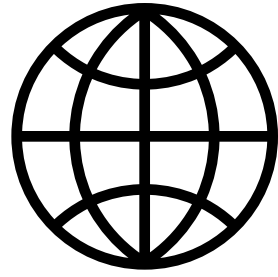
Building Prio Shares



Sending to Prio Aggregation Nodes







In Browser Data

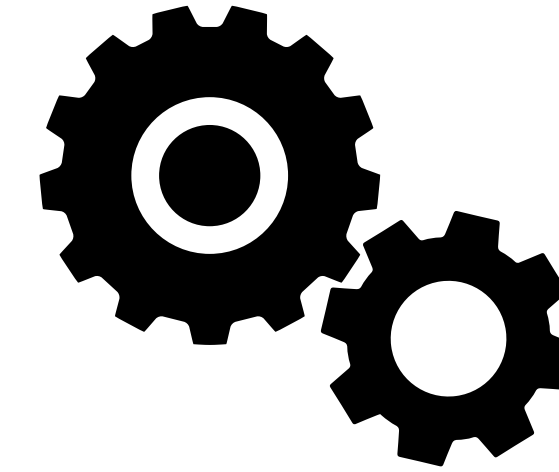
Advertiser

Key	Lifetime	Budget	Used
29c27	7	1	0
6406	30	2	0
031f6	14	1	0
11dc0	90	1	0

Publisher

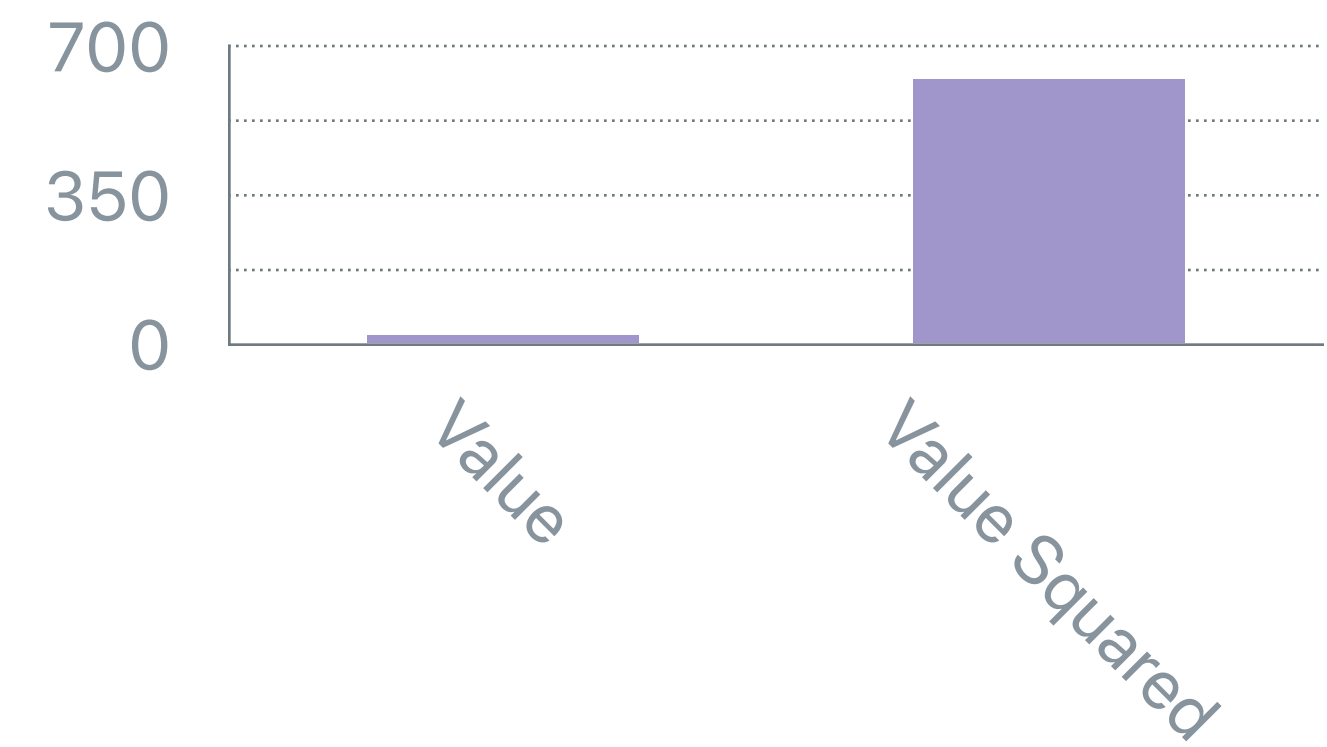
Key	Delay	Budget	Value
64066	1	1	10
74511	7, 14	2	0
6c2f3	2	1	25
6e9d3	1	1	65

Delay of 1 day from Ad Impression

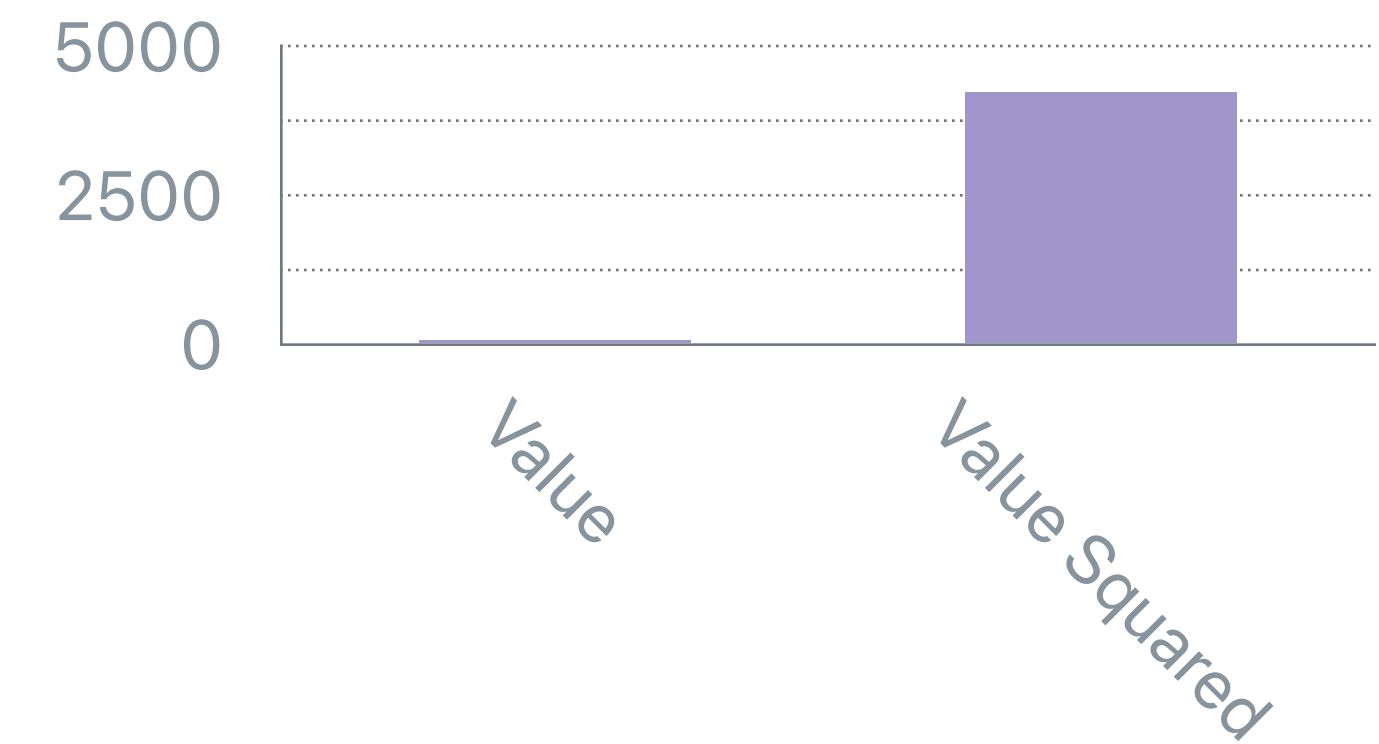


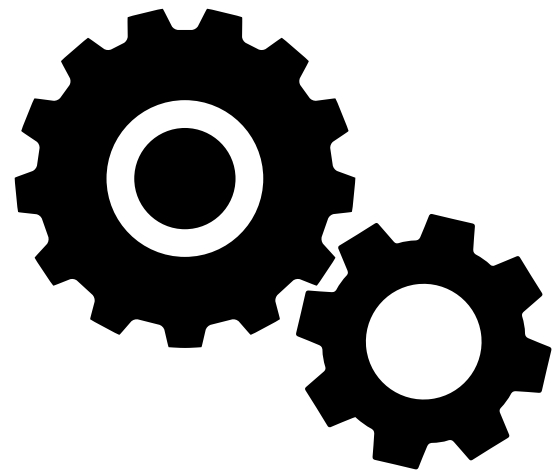
In Browser Publisher Report

Publisher Ad ID 6c2f3



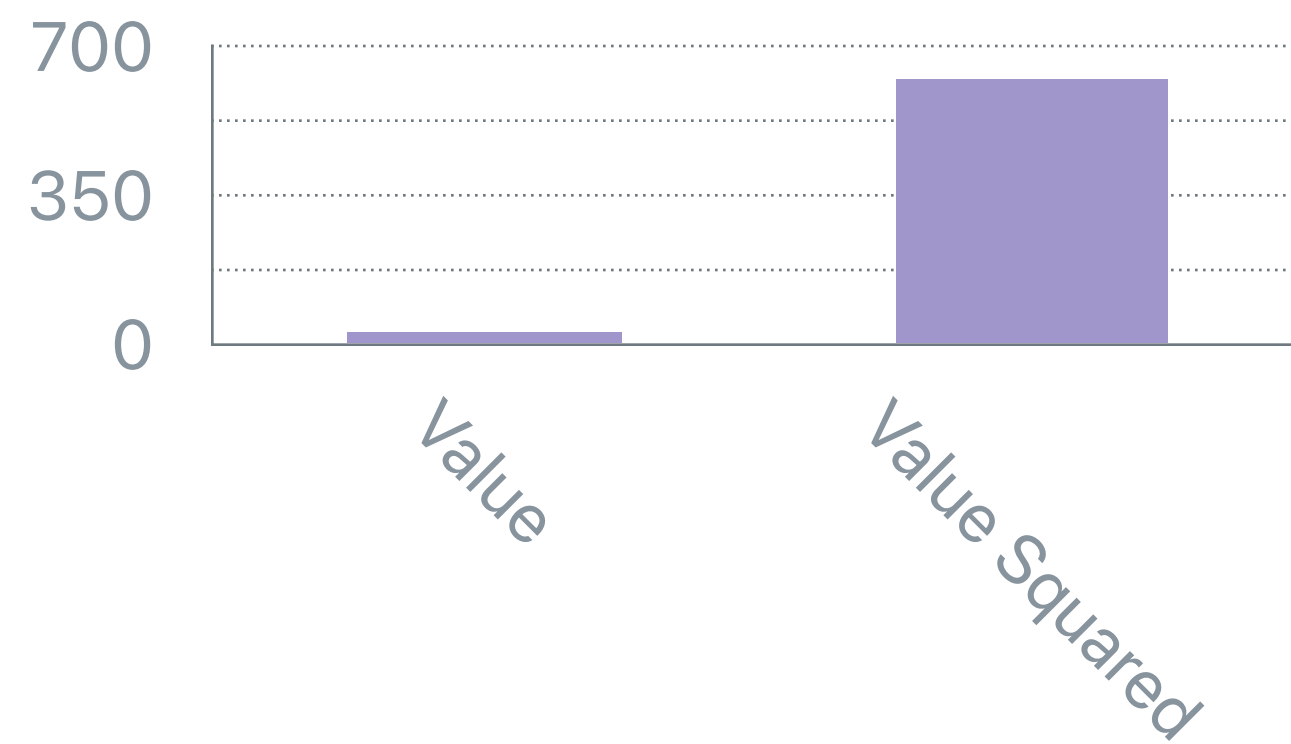
Publisher Ad ID 6e9d3



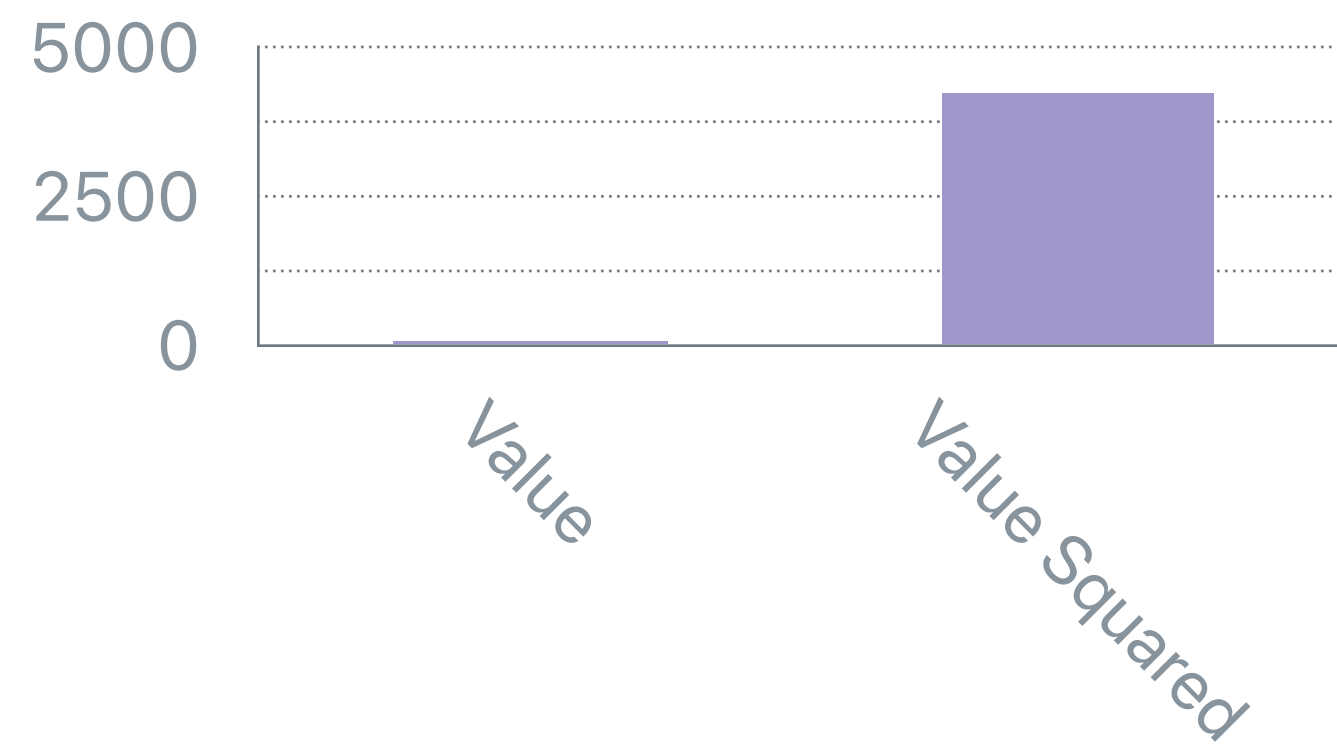


In Browser Publisher Report

Publisher Ad ID 6c2f3

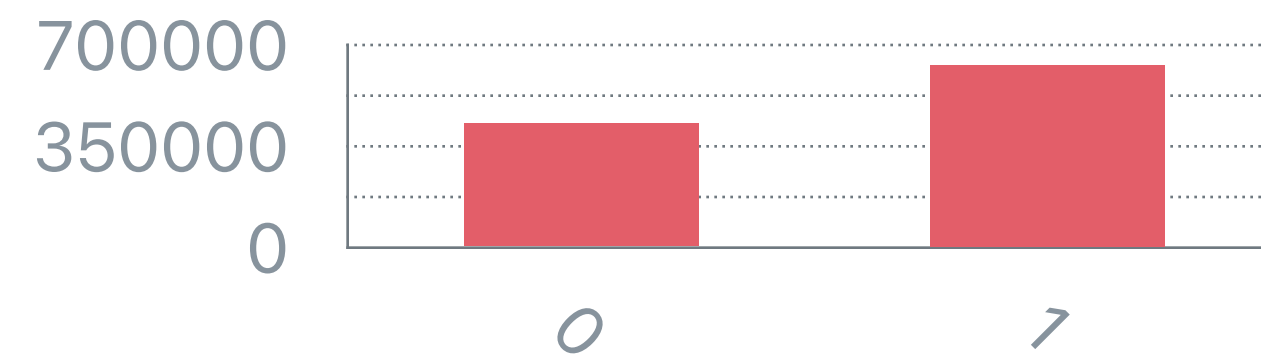


Publisher Ad ID 6e9d3

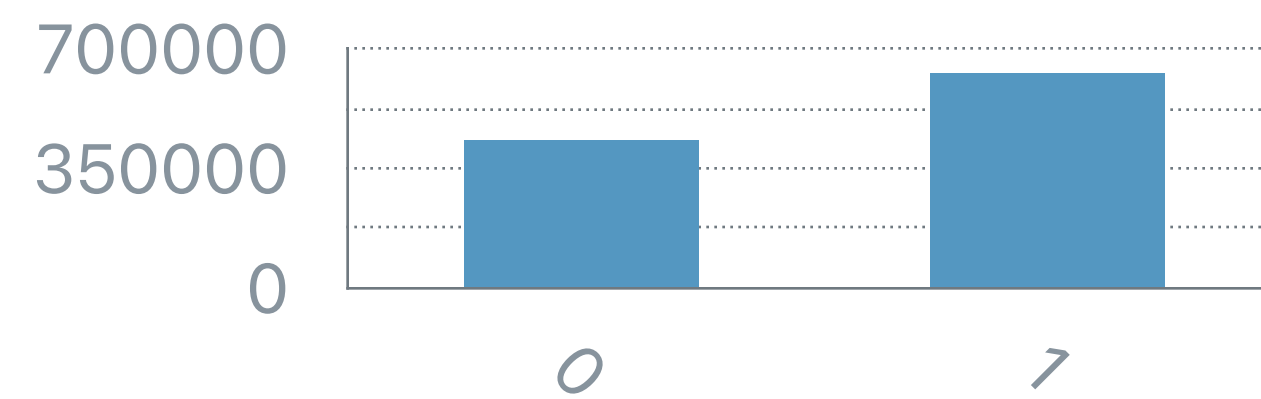


Building Prio Shares

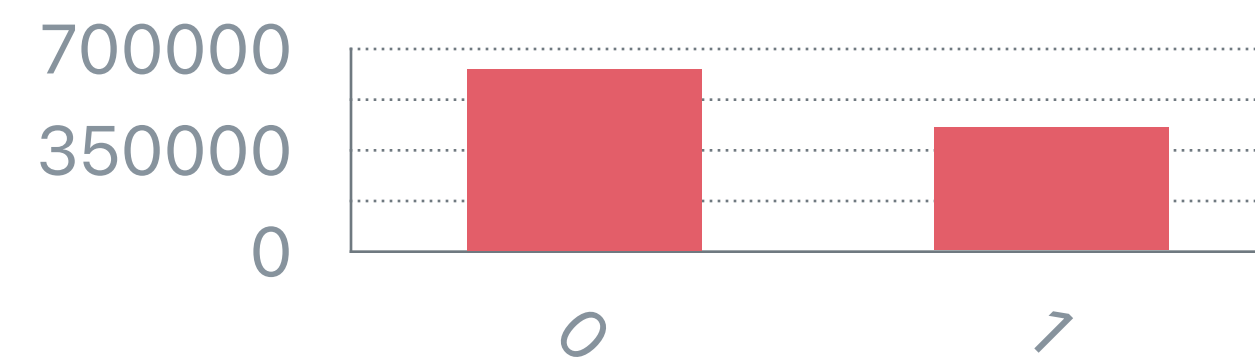
Publisher Ad ID 6c2f3



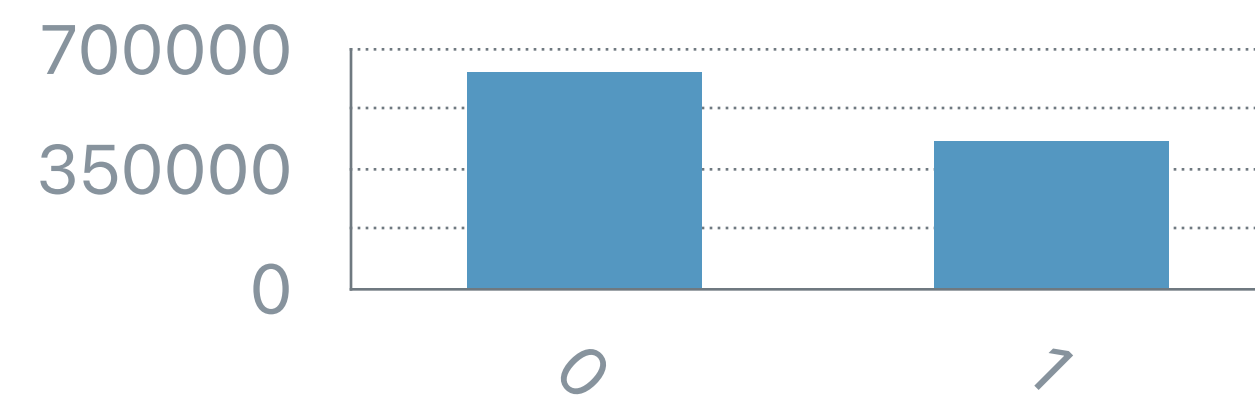
Publisher Ad ID 6c2f3



Publisher Ad ID 6e9d3



Publisher Ad ID 6e9d3



Sending to Prio Aggregation Nodes

PRIO Node 1

PRIO Node 2