



-Algorithm Documentation V 2.0.0

PREPARED BY

Thumbstack Technologies Private Limited Mumbai

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Revised Changes:-

- 1. If there are fewer schools (1, 2, or 3) we are not getting filteredSchool and schoolsForWisrOption from brand algo.(FIXED),**
- 2. If the campaign budget is less than the brandOutLay value of the lowest school on the list, brand algo should pick the lowest brandOutLay school from the list in the filteredSchool.(FIXED),**
- 3. Brand outlay prices need to be round off on the basis of final brand outlay for a school and not on individual inventory attributes prices round off. if final value for a school is greater than 0.50 it should consider next whole integer value and if lesser it should consider the lower integer value.(FIXED),**
- 4. WisrOption will always add minimum one extra school from Optimized Schools, (if increased reach could not impact in wisrOption's schools list, wisrOption will add a unique school which has min-brandOutlay),**
- 5. Added a recheck condition if extra budget is remaining after budget ratio Splitting in schools,
 - a. If extra budget is remaining, algorithm will check for schools which satisfies with the extra budget,****
- 6. Have optimized some conditions check and filters.,**



OVERVIEW AND GOAL

1. Project Overview

The Brand Algorithm

This algorithm will run on the back as an intelligent algorithm which enables the users with best possible outcomes with respect to campaign

2. Project Scope

Cover the Wisr Option's scenarios,

OBJECTIVES:

To construct an algorithm in which all methods and properties will be reactive.

DELIVERABLES:

- **Wiser Options**
 - **\$BudgetRatio**
 - Budget split ratio
 - Example:

```
{  
  CatA: 0.3,  
  CatB: 0.3,  
  CatC: 0.4,  
}
```
 - **\$InventoriesNames**
 - List of Inventories's Name
 - **\$EventsNames**
 - List of Events's Name
 - **\$CampaignDurationInDays**
 - Campaign Duration In Days
 - **\$FilteredSchool**
 - Recommended Schools For Normal Case
 - **\$SchoolsForWisrOption**
 - Recommended Schools For WisrOption
 - **\$OptimizedSchool**
 - Total No Of Schools
 - **\$SchoolList**
 - Initial SchoolList
 - **\$ClassroomList**
 - Initial ClassroomList
 - **\$InventoryList**
 - Initial InventoryList
 - **\$EventList**
 - Initial EventList

- **\$PercentageIncreaseInReach**
 - For Increase Reach in WisrOption
- **\$PercentageDiscountInWISR**
 - Wisr's Discount for WisrOption
- **\$NoOfDaysInYear**
 - Days In A School Year
- **\$SetBudget**
 - SetCampaign Budget
- **\$GetBudget**
 - GetUpdated Budget after \$SetBudget
- **\$SetReach**
 - To Update Reach in a Campaign
- **\$GetReach**
 - To Get Updated Reach after \$SetReach
- **\$SetImpressions**
 - To Update Impressions in a Campaign
- **\$GetImpressions**
 - To Get Updates Impressions in a Campaign
- **\$TotalInternalCostPerSchool**
 - Total Internal Cost for Calculate CostPerSchool
- **\$CatASchool**
 - List of CatA Schools form \$OptimizedSchool
- **\$CatBSchool**
 - List of CatB Schools form \$OptimizedSchool
- **\$CatCSchool**
 - List of CatC Schools form \$OptimizedSchool
- **\$MinBudget**
 - Minimum Budget For A Campaign(Don't use it, it is only of one low Budget School's Value)
- **\$MaxBudget**
 - Maximum Budget For A Campaign(Sum of All Schools's Budget)
- **\$IncreasedBudget**
 - IncreasedBudget For WisrOption
- **\$MinReach**
 - Minimum Reach value (Only one School Value, which has minimum reach)
- **\$MaxReach**
 - Maximum Reach value(Sum of All Schools's Reach)
- **\$IncreasedReach**
 - Increased Reach for WisrOption(30% increased by Default)
- **\$MinImpressions**
 - Minimum Impressions value (Only one School Value, which has minimum Impressions)
- **\$MaxImpressions**
 - Maximum Impressions value (sum of All Schools's Impressions)
- **\$IncreasedImpressions**
 - Increased Impressions for WisrOption
- **\$InventoryNOP_AffectedByNoOfTeacher**
 - List of Inventories whom's NoOfPlacement calculated By NoOfTeacher
 - Put NoOfPlacement 1 of those Inventories
- **\$InventoryNOP_AffectedByNoOfStudent**
 - List of Inventories whom's NoOfPlacement calculated By NoOfStudent
 - Put NoOfPlacement 1 of those Inventories
- **\$InventoryNOP_AffectedByNoOfClassroom**
 - List of Inventories whom's NoOfPlacement calculated By NoOfClassroom
 - Put NoOfPlacement 1 (or any value to multiply with classrooms) of those Inventories

Note:-

1. No any Value is HardCoded in algorithm
2. Some Values has Default data But you Can Change it with 'Observable.next()' method

REQUIREMENTS

The following value are the required for Instance Creation:-

Knowledge of RxJs is required

- Details of School:-
- Npm RxJs Package required
- Npm Lodash Package required

```
• EventsNames: ['Event 1', 'Event 2', 'Event 3'],
•   InventoriesNames: ['Inventory 1', 'Inventory 2',
  'Inventory 3'],
•   budgetRatio: { CatA: 0.3, CatB: 0.3, CatC: 0.4 },
•   campaignBudget: 10000000,
•   campaignDurationInDays: 100,
•   classroomData: [], //List of classrooms
•   eventData: [], //List of events
•   inventoryData: [], //List of inventories
•   schoolData: [], //List of schools
•   noOfDaysInYear: 210,
•   percentageDiscountInWISR: 0.1,
•   percentageIncreaseInReach: 0.3,
•   totalInternalCostPerSchool: 14180.3,
```

ASSUMPTIONS:

- All Data Properties of this Algo are the type of BehaviourSubject from RxJs,
- The requirements are entered from Observable's next method,
- For use the reactivity of RxJs get all the data Property from subscribe method

GUIDE TO USE:

- Import the WisrOptions class from wisrOptions.ts file in the project
- Make an instance of WiserOption and set all required Data Properties.

- Subscribe the Observable To access an data Property
- All the Data Properties are directly accessible through instance of WiseOption Class
- All Data properties listed Above

Example Of Instance Creation:-

```
const WisrOption = new WisrOptionService({

  EventsNames: ['Event 1', 'Event 2', 'Event 3'],

  InventoriesNames: ['Inventory 1', 'Inventory 2', 'Inventory 3'],

  budgetRatio: { CatA: 0.3, CatB: 0.3, CatC: 0.4 },

  campaignBudget: 10000000,

  campaignDurationInDays: 100,

  classroomData: [], //List of classrooms

  eventData: [], //List of events

  inventoryData: [], //List of inventories

  schoolData: [], //List of schools

  noOfDaysInYear: 210,

  percentageDiscountInWISR: 0.1,

  percentageIncreaseInReach: 0.3,

  totalInternalCostPerSchool: 14180.3,

});
```

Example Of Access Data Properties:-

```
WiserOption.$CatASchool.subscribe((schools) => {
    console.log('A', schools);
});

WiserOption.$FilteredSchool.subscribe((schools) => {
    console.log('Filtered', schools);
});
```

Example Of Set Data Properties:-

```
WiserOption.$SetReach.next(1000000); // this is just an example

WiserOption.$SetImpressions.next(500000); // this is just an example
```

Output Data Example:-

```
Category A: wizr-option-service.service.ts:140
  ▼ (3) [{...}, {...}, {...}] ⓘ
    ▼ 0:
      category: "A"
      ► classrooms: (5) [{...}, {...}, {...}, {...}, {...}]
      costPerSchool: 216797971.3
      ► events: [{...}]
      impressions: 1109250
      ► inventories: (4) [{...}, {...}, {...}, {...}]
      noOfTeachers: "15"
      schoolName: "New RD school"
      totalBrandOutlay: 215260.5657534247
      totalNoOfBoys: 250
      totalNoOfGirls: 250
      _id: "61f2419dca22230008f778ea"
      ► [[Prototype]]: Object
    ► 1: {_id: '621f6ad559cf470008cb099b', schoolName: 'Sid-Mumbai-School', category: 'A', noOfTeachers: '25', classrooms: Array(5), events: Array(1), inventories: Array(4), noOfBoys: '25', noOfGirls: '25', totalBrandOutlay: 215260.5657534247, totalNoOfBoys: 250, totalNoOfGirls: 250, _id: '621f6ad559cf470008cb099b', __proto__: Object}
    ► 2: {_id: '61a84ee7ad4a050009acbbef', schoolName: 'Amrut High School', category: 'A', noOfTeachers: '10', classrooms: Array(5), events: Array(1), inventories: Array(4), noOfBoys: '10', noOfGirls: '10', totalBrandOutlay: 215260.5657534247, totalNoOfBoys: 250, totalNoOfGirls: 250, _id: '61a84ee7ad4a050009acbbef', __proto__: Object}
    length: 3
    ► [[Prototype]]: Array(0)
```

FilteredSchool

wisr-option-service.service.ts:83

▼

(19)

[{...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}]

i

▶

0:

{_id: '61a84ee7ad4a050009acbbef', schoolName: 'Amrut High School', category: 'A', noOfTeachers: '10', classrooms: Array(14), ...}

▶

1:

{_id: '61f2419dca22230008f778ea', schoolName: 'New RD school', category: 'A', noOfTeachers: '15', classrooms: Array(5), ...}

▶

2:

{_id: '622f2d10d6ebc2000981405b', schoolName: "Malhotra's High School", category: 'B', noOfTeachers: '11', classrooms: Array(3), ...}

▶

3:

{_id: '61dde4c09899370009c5b9c7', schoolName: 'Ninad Mumbai test school', category: 'B', noOfTeachers: '20', classrooms: Array(1), ...}

▼

4:

category: "B"

▶ classrooms: (2) [{...}, {...}]

costPerSchool: 124784.3

▶ events: [{...}]

impressions: 276120

▶ inventories: (2) [{...}, {...}]

noOfTeachers: "12"

schoolName: "Delhi public school dummy"

totalBrandOutlay: 145283.77397260274

totalNoOfBoys: 60

totalNoOfGirls: 70

_id: "61de67749899370009c5b9e7"

▶ [[Prototype]]: Object

▶

5:

{_id: '61e1221c9899370009c5ba32', schoolName: 'dummy delhi school', category: 'B', noOfTeachers: '12', classrooms: Array(2), ...}

▶

6:

{_id: '61b84c9f9348190008b7cd09', schoolName: 'abcd schools ', category: 'B', noOfTeachers: '35', classrooms: Array(4), ...}

▶

7:

{_id: '61d45e68a1c66a00095cc91c', schoolName: 'dummy school', category: 'B', noOfTeachers: '13', classrooms: Array(4), ...}

▶

8:

{_id: '61b33cfd9348190008b7cce6', schoolName: 'RD school', category: 'C', noOfTeachers: '6', classrooms: Array(1), ...}

▶

9:

{_id: '61f4ffe0ca22230008f77927', schoolName: 'Dev, Greenwood International High School, Mumbai', category: 'C', noOfTeachers: '32', clas:

▶

10:

{_id: '61a79686388fffb000751b61f', schoolName: 'Dev- Govindrao High School ', category: 'C', noOfTeachers: '9', classrooms: Array(1), ...}

▶

11:

{_id: '61b0ad1c9348190008b7ccaf', schoolName: 'RD school', category: 'C', noOfTeachers: '5', classrooms: Array(1), ...}

▶

12:

{_id: '61ea4bc10d942700088bccb3', schoolName: 'Dummy delhi school', category: 'C', noOfTeachers: '23', classrooms: Array(2), ...}

▶

13:

{_id: '61bdcdbd6696d7b000862189a', schoolName: 'Vaibhav Chaturvedi', category: 'C', noOfTeachers: '45', classrooms: Array(4), ...}

▶

14:

{_id: '621f6ad559cf470008cb099b', schoolName: 'Sid-Mumbai-School', category: 'A', noOfTeachers: '25', classrooms: Array(15), ...}

Note:- The data values that used in examples are not accurate it may be differ in your Case



The informal CTO for your subnormal ideas

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Address: D3, First Floor, Matrushradha CHS, Plot Number 2, Veer Savarkar Nagar, Thane West, 400606.

Pin Location: <https://goo.gl/maps/g5Gms2SuwmbQx8ZU6>

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