



# -Algorithm Documentation V 2.0.0

**PREPARED BY**

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### **Revised Changes:-**

- 1. If there are fewer schools (1, 2, or 3) we are not getting filteredSchool and schoolsForWsrOption 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),**



# 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 reactiveness 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) [{...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}, {...}] ⓘ

▶ 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: [{...}] [4].costPerSchool

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: '61bdcbd6696d7b000862189a', 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

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