Analysis on Smartphones

To find Best Smartphone under Rs.35,000

Statistics And Numerical Methods – MA23211

Electronics and Communications Engineering

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DONE BY

KOWSHIC SHANKAR R - 2117230040064

Aim

To find Best Smartphone under Rs.35,000.

Procedure

Stage 1: Identification

First, we identified the parameters that we are going to consider to find a best mobile. So, we selected the following as parameters:

- Price
- Weight
- No of Service Centres
- Processor Score
- RAM Size
- Internal Storage Size
- Battery Size
- Charging Speed
- Display Technology
- Resolution
- Refresh Rate
- Dots per Inch (Dpi)
- Primary Camera Sensor
- Ultra-Wide Camera Sensor
- Macro Camera Sensor
- Depth Sensor
- OS Updates
- No of 5G Bands Supported in India
- USB Port Technology
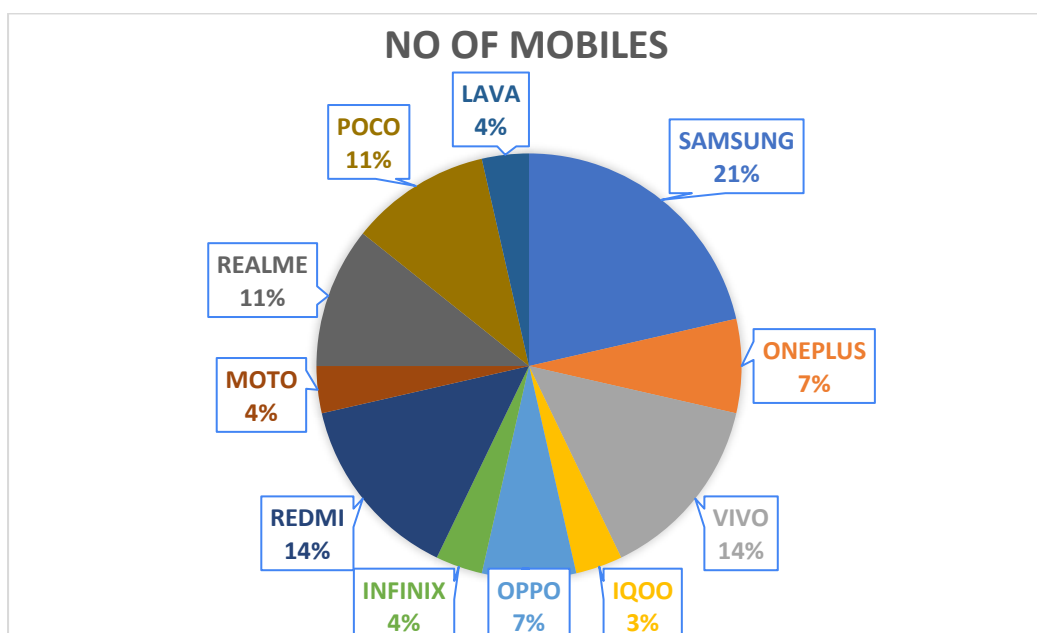- 3.5 mm
- In Box Charger
- Ecosystem

Then we shortlisted the following companies which were selling under the range 25k – 35k:

- Samsung
- Oneplus
- Vivo
- Iqoo
- Oppo
- Infinix
- Redmi
- Moto
- Realme
- Poco
- Lava

Stage 2: Scrapping

Then we created an Excel file with the parameters as columns and the Models from the shortlisted companies as rows. We got the data for all the parameters for each phone.

See the Attached **Sheet-1**

Stage 3: Conversion

We converted each value of each parameter into a value in the range of 0-5 by the following formula:

For Higher is better parameters like Performance Score:

$$f(x) = \begin{cases} 5, x = max \\ 4, max > x > Q3 \\ 3, Q3 > x > avg \\ 2, avg > x > Q1 \\ 1, Q1 > x > min \\ 0, x = min \end{cases}$$

For Lower is better parameters like Price:

$$f(x) = \begin{cases} 0, x = max \\ 1, max > x > Q3 \\ 2, Q3 > x > avg \\ 3, avg > x > Q1 \\ 4, Q1 > x > min \\ 5, x = min \end{cases}$$

Were,

Max   -   Maximum Value

Min   -   Minimum Value

Avg   -   Average

Q1   -   Average of avg & min

Q3   -   Average of avg & max

See the Attached **Sheet-2**

Stage 4: Grouping

In this stage we shrinked the no of parameters to get a simplified result. The following parameters are the shrinked ones:

- Display
    - Display Technology
    - Resolution
    - Refresh Rate
    - Dots per Inch (Dpi)
- Camera
    - Primary Camera Sensor
    - Ultra-Wide Camera Sensor
    - Macro Camera Sensor
    - Depth Sensor
- Battery
    - Battery Size
    - Charging Speed
    - In Box Charger
- Performance
    - Processor Score
    - No of 5G Bands Supported in India
    - USB Port Technology
- Build Quality
    - Weight
    - 3.5 mm
- Memory
    - RAM Size
    - Internal Storage Size
- Services
    - No of Service Centres
    - Ecosystem
    - OS Updates

All the new parameters again went **Stage3.** See the Attached **Sheet-3**

Stage 5: Opinions

For each mobile we seen at least 1 but mostly tried to see 3 youtubers review and calculated values in range of 0-5 according to their opinions divided into the following parameters same as seen above:
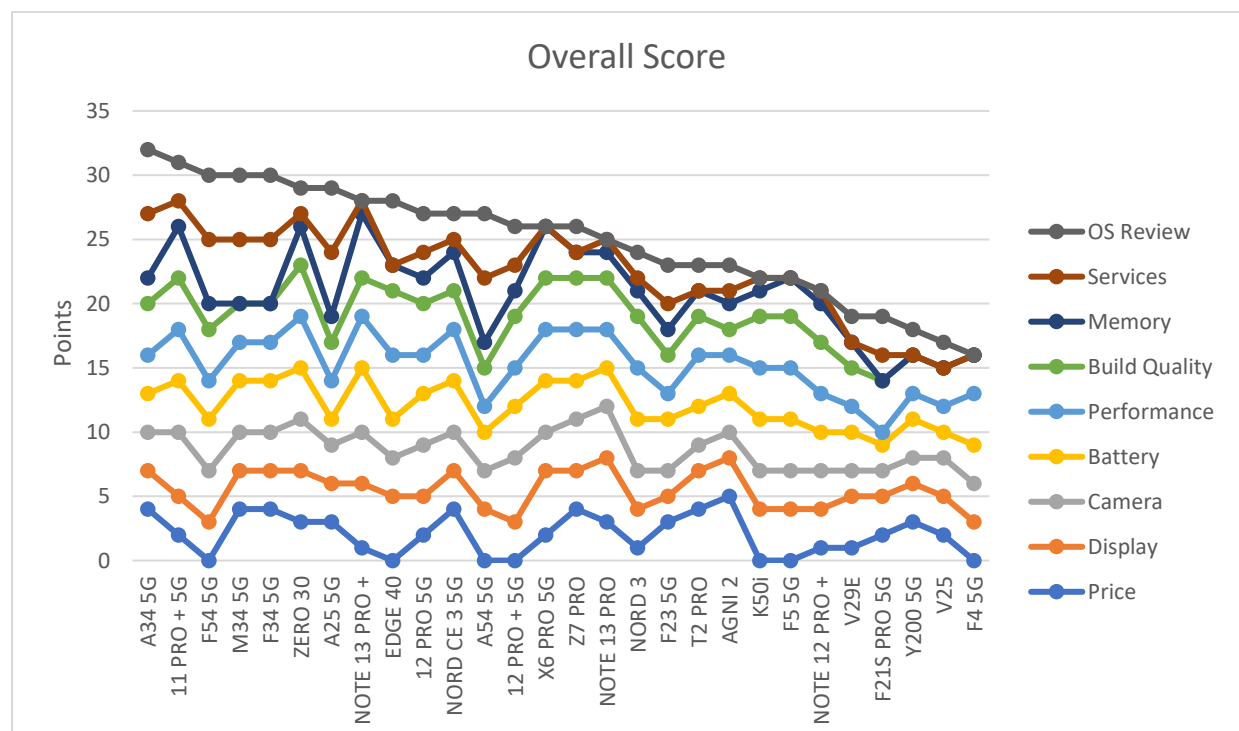
- Display
- Camera
- Battery
- Performance
- Build Quality
- Operating System

See the Attached **Sheet-4**
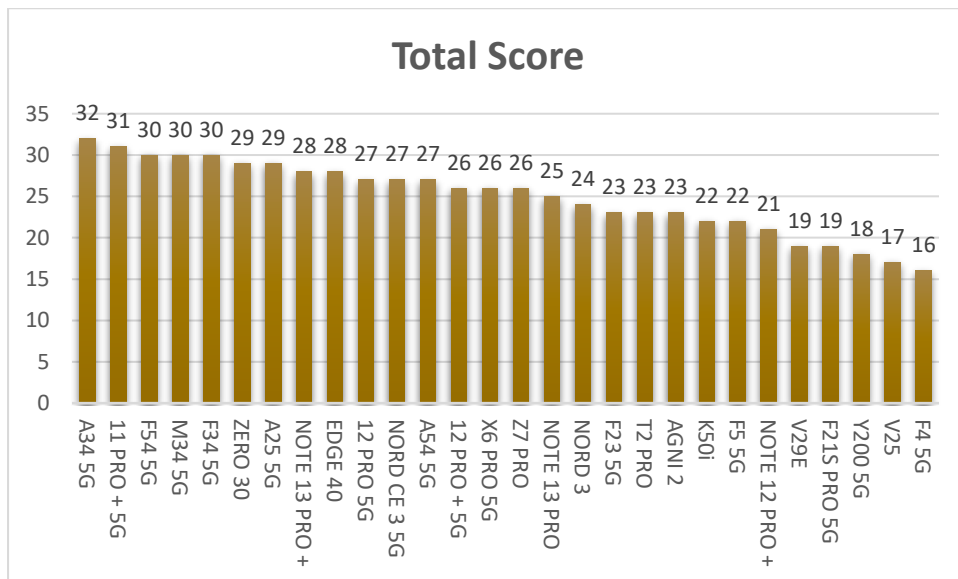
Stage 6: Merging

Merged the result got on **Sheet-3 & Sheet-4** by averaging the common parameters. And finally calculated the Total Score as the sum of all individual parameters.

See the Attached **Sheet-5**

Result

All the upcoming results are based on the **Sheet-5.**

Total Score

Overall Best Smartphone   :   Samsung A34 5G

Other Categories:

Best Display Smartphone   :   Moto Edge 40

Best Camera Smartphone   :   Realme 11 Pro+ 5G

Best Battery Smartphone   :   Redmi Note 13 Pro+

Best Performance Smartphone   :   Moto Edge 40

Best Build Quality Smartphone   :   Moto Edge 40

Reference

- All the information about the smartphones is taken from GSMArena.com website.
- All Reviews are mostly taken from Tamil Tech, Tech Boss Tamil & Trakin Tech Tamil.
- All Processor scores are From AnTuTu Benchmarks