

Q. Which programming language and version did you pick?

Ans. I use java 11 for this project.

Q. Why did you pick this programming language?

I picked java because it's widely used for enterprise applications, desktop applications, web applications and android applications. It has a large helping community and it has strong support for object oriented programming (oop).

Q. How your programming language chosen handles: object-oriented programming, file ingestion, conditional statements, assignment statements, loops, subprograms (functions/methods), unit testing and exception handling. If one or more of these are not supported by your programming language, indicate it as so

Ans. Object-Oriented programming:

Java fully supports object oriented programming such as polymorphism, abstraction, inheritance, encapsulation, interfaces etc.

File Ingestion: Java provides classes like `FileReader`, `BufferedReader`, and libraries like Apache Commons CSV for efficient file ingestion and processing.

Conditional Statements: Java provides if-else statements, switch-case statements, and ternary operators for conditional Statements.

Assignment Statements: Java uses the assignment operator `=` for assigning values to variables.

Loops: Java provides us various types of loops such as for loop, while, and do-while loops.

Subprograms (Methods/Functions): In Java Methods are defined within classes and can be called to perform specific tasks.

Unit Testing: Java has robust unit testing frameworks like JUnit and TestNG for writing and executing tests. These frameworks provide annotations and assertions for writing test cases which helps us to test the quality and output of the code.

Exception Handling: Java has built-in exception handling mechanisms using try, catch, finally, and throw keywords to handle runtime errors and exceptions.

Q. List out 3 libraries you used from your programming language (if applicable) and explain what they are, why you chose them and what you used them for.

Ans. Apache Commons CSV: This library is used for reading and writing CSV files in Java. It provides a convenient API for parsing CSV data.

JUnit: JUnit is a popular unit testing framework for Java. It's widely used for writing and executing unit tests to ensure code quality and correctness.

java.util.regex: Java's built-in regular expression library (`java.util.regex`) is used for pattern matching and extraction. It's helpful for parsing textual data with complex patterns.

Q. What company (oem) has the highest average weight of the phone body?

Ans. Lenovo

```
54 cell cell = new Cell();
55 // Print the Company with highest average weight
56 System.out.println("Company with highest average weight: " + cell.calculateAverageWeight(cellMap));
57 // Print phones that were announced in one year and released in another
58 // cell.diffYearAnnounced(cellMap);
59 // Print total phones with one features
60 System.out.println("Phones With one Feature: "+cell.oneFeatureSensor(cellMap));
61 // Print mostPhonesLaunchedyear
62 // System.out.println("Most Phones Launched in Year: "+cell.mostPhonesLaunchedyear(cellMap));
63
64
65
```

PROBLEMS OUTPUT **TERMINAL** PORTS DEBUG CONSOLE

Run: Main + - [] [] ... X

```
shahmeerkhanshahmeers-MacBook-Air AlternativeLanguage % /usr/bin/env /Library/Java/JavaVirtualMachines/temurin-11.jdk/Contents/Home/bin/java @/var/folders/9f/x48hjz2n1rx12sn26566g7y8000gn/T/c
p_7n8mhmtxkfyda3qi03hoywnjd.argfile alternativeLanguage.Main
Company with highest average weight: Lenovo
shahmeerkhanshahmeers-MacBook-Air AlternativeLanguage %
```

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Q. Was there any phones that were announced in one year and released in another? What are they? Give me the oem and models.

Ans. Total Different Years OEMs: 4

OEM: Xiaomi Redmi K30 5G Year: Announced 2019, Released: 2020

OEM: Motorola Razr 2019 Year: Announced 2019, Released: 2020

OEM: Xiaomi Mi Mix Alpha Year: Announced 2019, Released: 2020

OEM: Motorola One Hyper Year: Announced 2019, Released: 2020

```

54 Cell cell = new Cell();
55 // Print the Company with highest average weight
56 // System.out.println("Company with highest average weight: " + cell.calculateAverageWeight(cellMap));
57 // Print phones that were announced in one year and released in another
58 cell.diffYearAnnounced cellMap;
59 //Print total phones with one features
60 // System.out.println("Phones With one Feature: "+cell.oneFeatureSensor(cellMap));
61 // Print mostPhonesLaunchedYear
62 // System.out.println("Most Phones Launched in Year: "+cell.mostPhonesLaunchedYear(cellMap));
63

```

PROBLEMS OUTPUT TERMINAL PORTS DEBUG CONSOLE

Run: Main + - [] ... ^

```

shahmeerkh@Shahmeers-MacBook-Air AlternativeLanguage % /usr/bin/env /Library/Java/JavaVirtualMachines/temurin-11.jdk/Contents/Home/bin/java @var/folders/9f/x48hjznr1rx12sn26566g7y80000gn/p_7n8htxkfyda3q103hhoywjd.argfile alternativeLanguage.Main
Total Different Years OGMs: 4
OEM: Xiaomi Redmi K30 5G Year: Announced 2019, Released: 2020
OEM: Motorola Razr 2019 Year: Announced 2019, Released: 2020
OEM: Xiaomi Mi Mix Alpha Year: Announced 2019, Released: 2020
OEM: Motorola One Hyper Year: Announced 2019, Released: 2020
shahmeerkh@Shahmeers-MacBook-Air AlternativeLanguage %

```

Q. How many phones have only one feature sensor?

Ans. Phones With one Feature: 432

