Comprehensions Program Problems

1. Extract Username from a List of Emails
   emails = ["alice@gmail.com", "bob@yahoo.com", "charlie@outlook.com"]

2. Filter out empty strings from a list
   lines = ["Hello", "", "Python", "", "AI"]

3. Convert a list of product prices from string to float
   price_strings = ["19.99", "5.49", "3.50"]

4. Remove currency symbol from prices
   raw_prices = ["$100", "$250", "$75"]

5. Flatten a 2D matrix
   matrix = [[1, 2], [3, 4], [5, 6]]

6. Create all possible username–domain pairs
   users = ["alice", "bob"]
   domains = ["gmail.com", "yahoo.com"]

7. Generate multiplication table

8. Filter ages for eligibility of vote
   ages = [15, 20, 30, 12, 18]

9. Generate All Color-Size Combinations
   colors = ["Red", "Blue"]
   sizes = ["S", "M", "L"]

10. Assign Each Subject to Each Student for Enrollment
    students = ["Alice", "Bob"]
    courses = ["C++", "Python", "Data Structures"]

11. Pair Employees with Tasks
    employees = ["Alice", "Bob"]
    tasks = ["Report", "Review"]

12. Calculate Age from Birth Years
    birth_years = [1990, 1985, 2000]

13. Get Even-Numbered RNos
    RNos= list(range(1001, 1011))

14. Convert List of Integers to Strings
    numbers = [10, 20, 30]

15. Replace Missing Grades with "N/A"
    grades = [95, None, 88, None, 76]

16. Generate Hashtags with each Word of a String languages
    languages= "c c++ python html css java django php sql"

17. Mark Students as Passed or Failed
    marks = [45, 67, 29, 80, 39]

18. Filter names with 5 or fewer characters.
    names = ["Alice", "Bob", "Christina", "Eve"]

19. Temperatures in Celsius from Fahrenheit
    fahrenheit = [98.6, 102.2, 97.5]

20. Create Tuple of File Extensions
    files = ["data.csv", "report.pdf", "image.png"]

21. Extract all product names from a list of (name, price)
22. From a list of temperatures, generate a list labeling each as "Hot" or "Cold"
23. Capitalize all user-entered names in a list.
24. Build a tuple of students who scored more than 80
25. Create a tuple of even numbers from 1 to 20.
26. Show unique domain names from a list of email addresses
27. Create a set of words used in user reviews that are longer than 6 characters.