

Problem Solving Challenge!

For each of the following, please draw the flowchart and then create the block coding solutions on [EduBlocks](#).

1. Temperature Alert Console

Difficulty focus: Warm-up but not trivial

Task	- Ask the user for a city name and today's temperature. - Store both pieces of information in variables. - Print a sentence that includes the city and temperature. - If the temperature is below 5, print a cold-weather warning. Otherwise print a normal-day message.
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Hints: Use text blocks to build a full sentence. Try to make the output look like a weather report.

2. Ticket Price Estimator

Difficulty focus: Introduces calculation and branching

Task	- Ask for the visitor's age and whether they want a snack voucher. - Calculate the base ticket price using age bands. - If a snack voucher is chosen, add its cost. - Print the final amount and a short explanation of how it was worked out.
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Hints: Students should combine math, variables and at least one if-else chain.

3. Pattern Line Generator

Difficulty focus: First structured repetition

Task	- Ask the user for a word and a repeat count. - Use a loop to print the word with line numbers from 1 up to the repeat count. - At the end, print how many total characters were shown across all lines.
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Hints: This requires a running total variable and a counting loop.

4. Countdown with Rules

Difficulty focus: Loop plus conditional behaviour

Task	- Ask for a starting number. - Count down to 1 using a loop. - For each number, use if-else to print either 'buzz' for multiples of 5, 'even' for even numbers, or the number itself for all other cases. - Print 'Blast off!' at the end.
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Hints: Students need both looping and decisions inside the loop.

5. Secure Login with Limited Attempts

Difficulty focus: All core structures together

Task	- Ask the user for a username and password. - Keep giving the user up to 3 attempts. - Use if-else to decide whether the login is correct, partly correct, or wrong. - Stop early if both are correct and print 'Access granted'. - If all attempts are used, print 'Account locked'.
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Hints: Students need both looping and decisions inside the loop.

6. Number Guessing Game with Hints and Score

Difficulty focus: Repeated input with state tracking

Task	- Choose a secret number in the program. - Ask the player for guesses until they get it right or run out of 6 turns. - Use if-else to say 'too high', 'too low' or 'correct'. - Keep a score that starts at 100 and drops after each wrong guess. - Print the final score and number of guesses used.
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Hints: Students must update variables during the loop.

7. Shopping Basket Checker

Difficulty focus: Branching totals and validation

Task	- Ask how many items the customer wants to enter. - Use a loop to collect each item's price. - If a price is below 0, reject it and ask again for that same item. - After valid entry, add it to the basket total. - At the end, apply a discount if the total passes a chosen threshold and print the final bill.
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Hints: This problem introduces input validation and repeated re-entry.

8. Quiz Game with Categories

Difficulty focus: Nested loops and nested decisions required

Task	- Ask how many rounds the player wants to play. - For each round, ask the player to choose a category: math, spelling or logic. - Inside the round loop, ask a question from that category. - Use nested if-else blocks to decide which question to ask and whether the answer is correct. - Keep separate scores for total correct answers and category wins. - Print a summary at the end.
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Hints: A loop over rounds plus decisions inside that loop are required. Stronger students can randomise the question choice.

9. Bus Seat Planner

Difficulty focus: Nested loops over rows and seats

Task	- Ask for the number of rows and seats per row. - Use nested loops to build the seating plan row by row. - For each seat, ask whether it is booked, empty or reserved for special access. - Use nested if-else to print a symbol for each seat, such as X, O or A. - After the plan is printed, show totals for booked, empty and access seats.
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Hints: This requires one loop inside another and decisions inside the inner loop.

10. Mini Tournament Manager

Difficulty focus: Most demanding multi-stage challenge

Task	- Ask how many players are in the tournament and how many matches each player will play. - Use nested loops to enter scores for every player across all matches. - For each score, use nested if-else to award points, bonus points, or penalties based on performance bands. - Track each player's total points and number of wins. - After all data is entered, decide who is champion, runner-up and who needs more practice. - Print a final leaderboard summary.
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Hints: This problem combines repeated input, nested loops, nested if-else, totals, comparison and careful variable management.

Optional extension rules

- Students should test with both valid and invalid inputs.
- Please use meaningful variable names rather than single letters.
- Where possible, students should add a clear final summary screen on the EduBlocks output.
- Advanced students can create their own extra level, menu, or replay feature for the game-based problems.