Code Your Summer, 50 Fun Challenges to keep you sharp

Hey, coder! These 50 challenges will test your understanding of how computers make choices (like deciding what to say based on an answer), and repeat things (like printing a star lots of times). use **variables** (like a box where you can store a number or word that might change) and **constants** (like a locked box with a value that stays the same forever). The tasks start super easy and get a bit trickier, with some having **nested** parts (like a choice inside a choice or repeating something inside another repeat). Each challenge explains exactly what to do in simple steps, so you can have fun making your own programs!

These challenges teach you how to store information, make simple choices, and repeat things. They're perfect for beginners!

1. **Greeting Chooser**
   Imagine you're making a friendly robot! Ask the user to type their name and save it in a box called "name." If their name is "Alex," make the computer say, "Hello, friend!" If it's any other name, make it say, "Hi, stranger!" Use a choice to decide which message to show.

2. **Pet Chooser**
   Let's pick a favorite pet! Ask the user to type a pet, like "dog" or "cat," and save it in a box. If they pick "dog," make the computer say, "Woof! Dogs are awesome!" For any other pet, say, "Cool choice, but I love dogs!" Use a choice to decide what to say.

3. **Favorite Number**
   Create a locked box called "favorite number" and set it to 7 (it won't change). Ask the user to guess a number and save it in a box. If they guess 7, make the computer say, "That's my favorite number!" If not, say, "Nice try, guess again!" Use a choice to check the guess.

4. **Counting to 5**
   Let's count like a rocket blasting off! Make the computer count from 1 to 5. Save each number in a box and show it, like "Number: 1," "Number: 2," and so on, one per line. Repeat this 5 times to show all the numbers.

5. **Even or Odd**
   Make a game to check if a number is even (like 2, 4, 6) or odd (like 1, 3, 5).

Ask the user for a number and save it in a box. If it's even (divides by 2 with no leftover), say, "Even!" If not, say, "Odd!" Use a choice to decide.

6. **Multiples of 3**
   Let's find numbers that 3 can divide perfectly, like 3, 6, 9! Make the computer show numbers from 3 to 15, going up by 3 each time. Save each number in a box and show it, like "3," "6," "9," and so on. Repeat until you reach 15.

7. **Password Checker**
   Pretend you're guarding a secret clubhouse! Create a locked box called "password" set to "secret123." Ask the user to type a password and save it in a box. If it matches the locked box, say, "Access granted! Welcome!" If not, say, "Access denied!" Use a choice to check.

8. **Counting Down**
   Create a game timer countdown! Start with 10 in a box and make the computer show it. Then subtract 1, show the new number, and keep going until you reach 1. Repeat this, showing each number, like "10," "9," "8," and so on.

9. **Traffic Light**
   Be a traffic light controller! Ask the user for a color (like "red" or "green") and save it in a box. If it's "green," say, "Go!" If it's "red," say, "Stop!" If it's "yellow," say, "Wait!" Use choices to pick the right message.

10. **Square Numbers**
    Let's make numbers bigger by squaring them (multiplying a number by itself)! Go from 1 to 5, saving each number in a box. Calculate its square (like 2 squared is 4) and show it, like "1 squared is 1," "2 squared is 4." Repeat for all 5 numbers.

11. **Positive or Negative**
    Be a number detective! Ask the user for a number and save it in a box. If it's bigger than 0, say, "Positive!" If it's 0 or less, say, "Negative or zero!" Use a choice to decide what to say.

12. **Looping Stars**
    Draw a tower of stars! Make the computer show a star (*) on 5 different lines, one star per line. Use a box to count how many times you've shown a star and repeat 5 times.

13. **Age Restriction**
    You're checking tickets for a cool show! Create a locked box called "minimum

age” set to 10. Ask the user for their age and save it in a box. If they’re 10 or older, say, “Welcome to the show!” If not, say, “Sorry, you’re too young!” Use a choice.

14. **Sum of Numbers**
    Act like a calculator! Add up the numbers from 1 to 10. Use a box to keep track of the total, starting at 0. Add each number one by one and repeat until you’ve added all 10. Show the final total, like “The sum is 55.”

15. **Guess the Animal**
    Make a fun animal guessing game! Create a locked box called “my animal” set to “dog.” Ask the user to guess an animal and save it in a box. If they guess “dog,” say, “Correct! It’s a dog!” If not, say, “Nope, it’s a dog!” Use a choice.

16. **Counting by Twos**
    Count only even numbers, like 2, 4, 6! Start with 2 in a box and show it. Add 2 each time and show the next number, like “4,” “6,” up to 10. Repeat until you reach 10.

17. **Temperature Check**
    Be a weather helper! Ask the user for the temperature (like 25) and save it in a box. If it’s above 30, say, “Hot!” If it’s 15 to 30, say, “Nice!” If it’s below 15, say, “Cold!” Use choices to pick the message.

18. **Print Your Name**
    Make your name a star! Ask the user for their name and save it in a box. Show their name 3 times, like “Emma!” on one line, then “Emma!” again, and one more time. Repeat this 3 times.

19. **Magic Number**
    Create a magic number game! Make a locked box called “magic number” set to 42. Ask the user for a number and save it in a box. If they pick 42, say, “You found the magic number!” If not, say, “Keep looking!” Use a choice.

20. **Counting Up**
    Climb a number ladder! Start with 1 in a box and show it. Add 1 each time and show the next number, like “2,” “3,” up to 7. Repeat until you reach 7.

These challenges mix choices and repeating things, and some have choices or repeats inside others (nested). They’re a bit more like puzzles!

21. **Number Guessing Game**
    Make a number guessing game! Create a locked box called “secret” set to 8. Keep asking the user for a number and save it in a box. If they guess 8, say, “Correct!” and stop. If not, say, “Try again!” and keep asking. Use a choice to check each guess.

22. **Multiplication Table**
    Show the times table for 5! Go from 1 to 10, saving each number in a box. Multiply it by 5 and show the result, like “5 x 1 = 5,” “5 x 2 = 10,” up to “5 x 10 = 50.” Repeat for all 10 numbers.

23. **Grade Calculator**
    Be a school teacher! Ask the user for a test score (0 to 100) and save it in a box. If it’s 90 or more, say, “A!” If it’s 80 to 89, say, “B!” If it’s 70 to 79, say, “C!” If it’s below 70, say, “F!” Use choices to pick the grade.

24. **Nested Even Checker**
    Find even numbers in a list! Go through numbers from 1 to 10, saving each in a box. Inside that, check if the number is even (divides by 2 with no leftover). If it is, show it, like “2,” “4,” “6.” Repeat for all numbers and use a choice for even ones.

25. **Password Retry**
    Guard a secret vault! Create a locked box called “correct password” set to “python.” Give the user 3 tries to type a password, saving each try in a box. Check if it matches the locked box. If it does, say, “Success!” and stop. If not, say, “Try again!” After 3 wrong tries, say, “Locked out!” Use a choice and repeat.

26. **Star Triangle**
    Draw a triangle of stars! Show 1 star on the first line, 2 stars on the second, up to 5 stars on the fifth, like “*,” “*,” “*.” Use a box to track how many stars to show and repeat for 5 lines.

27. **Divisible by 3 and 5**
    Find super special numbers! Go through numbers from 1 to 20, saving each in a box. Inside that, check if the number can be divided by both 3 and 5 (like 15). If it can, show it. Repeat for all numbers and use a choice to check.

28. **Simple Calculator**
    Build a mini calculator! Ask the user for two numbers and whether they want to add (“+”) or subtract (“-”). Save them in boxes. If they choose “+,” add the numbers. If they choose “-,” subtract them. Show the result, like “5 + 3 = 8.”

Use choices to decide what to do.

29. **Counting Vowels**
    Be a word spy! Ask the user for a word, like “hello,” and save it in a box. Go through each letter in the word. If it’s a vowel (a, e, i, o, u), add 1 to a box that counts vowels. Repeat for all letters and show the total count, like “Vowels: 2.”

30. **Nested Loop Square**
    Draw a star square! Make a 4x4 grid of stars (4 lines, 4 stars each, like “****”). Use a box to count lines and another to count stars in each line. Repeat the stars for each line and repeat the lines 4 times.

31. **Age and Height Check**
    Check if someone can ride a fun roller coaster! Ask for their age and height in centimeters and save them in boxes. First check if their age is 12 or more. If it is, check if their height is 140 or more. If both are true, say, “Ride allowed!” If not, say, “Too young!” or “Too short!” Use choices inside choices.

32. **Sum of Evens**
    Add up all even numbers! Go through numbers from 1 to 20, saving each in a box. If the number is even, add it to a box that keeps the total, starting at 0. Repeat for all numbers and show the final total, like “Sum of evens: 110.” Use a choice for even numbers.

33. **Guess with Hints**
    Make a smart guessing game! Create a locked box called “answer” set to 25. Keep asking the user for a number and save it in a box. If it’s above 25, say, “Too high!” If it’s below 25, say, “Too low!” If it’s 25, say, “Correct!” and stop. Use choices to give hints.

34. **Number Pattern**
    Create a cool number pattern! Show “1” on the first line, “1 2” on the second, and “1 2 3” on the third. Use a box for the line number and another to show numbers in each line. Repeat for 3 lines and repeat numbers in each line.

35. **Ticket Price**
    Run a ticket booth! Create two locked boxes: “adult price” set to 10 and “child price” set to 5. Ask for the user’s age and save it in a box. If they’re 18 or older, show the adult price ($10). If younger, show the child price ($5). Use a choice.

36. **Factor Counter**
    Count how many numbers divide another! Ask for a number and save it in a box. Go through numbers from 1 to that number. If each one divides the

number evenly (no leftover), add 1 to a box that counts them. Repeat for all numbers and show the count, like “Factors: 4.”

37. **Nested Color Chooser**
    Make a color game! Ask for a color and save it in a box. If it’s “red,” show “Red is awesome!” 3 times. If it’s not “red,” show “I like red better!” Use a choice, and if it’s red, repeat the message 3 times.

38. **Multiples in Range**
    Find numbers divisible by 4! Ask the user for a start number and an end number, and save them in boxes. Go through numbers from start to end. If a number divides by 4 evenly, show it. Repeat for all numbers and use a choice to check.

39. **Simple Quiz**
    Create a fun quiz! Make a locked box called “answer” set to “Paris.” Ask, “What’s the capital of France?” and save the answer in a box. Give them 3 tries. If they get it right, say, “Correct!” and stop. If not, say, “Try again!” After 3 tries, stop. Use a choice and repeat.

40. **Reverse Counting**
    Count down like a rocket launch! Start with 20 in a box and show it. Subtract 1 each time and show the number, like “19,” “18,” down to 10. When the number is 15, also say, “Halfway!” Repeat until 10 and use a choice for the halfway message.

These challenges combine choices and repeats in cool ways, with more nested parts. They’re like brain teasers!

41. **Nested Number Checker**
    Play a FizzBuzz game! Go through numbers from 1 to 15, saving each in a box. Check if the number divides by 3 and 5 evenly (like 15). If it does, say, “FizzBuzz!” If it divides only by 3, say, “Fizz!” If only by 5, say, “Buzz!” Repeat for all numbers and use choices inside choices.

42. **Pin Entry System**
    Guard a secret code! Create a locked box called “pin” set to “1234.” Give the user 3 tries to type a pin and save it in a box. If it matches, say, “Access granted!” and stop. If not, say, “Try again!” After 3 wrong tries, say, “Locked!”

Use a choice and repeat.

43. **Star Diamond**
    Draw a star diamond! Show 1 star, then 3 stars, then 5 stars, then 3, then 1, like “*,” “***,” “*****,” “***,” “*.” Use a box for the line and another for how many stars. Repeat lines and repeat stars in each line.

44. **Grade Average**
    Be a math teacher! Ask for 5 test scores (0 to 100) and save each in a box. Check if each score is valid (0 to 100). Add them to a box that keeps the total, then divide by 5 to get the average. Show it, like “Average: 85.” Repeat for 5 scores and use a choice for valid scores.

45. **Nested Loop Grid**
    Make a number grid! Show a 5x3 grid (5 lines, 3 numbers each, like “1 2 3”). Use a box for the line and another for the numbers in each line. Repeat the lines 5 times and repeat numbers 3 times per line.

46. **Prime Number Check**
    Find if a number is prime (only divides by 1 and itself)! Ask for a number and save it in a box. Go through numbers from 2 to one less than the input. If any divide it evenly, it’s not prime. If none do, say, “Prime!” Otherwise, say, “Not prime!” Repeat and use a choice.

47. **Temperature Converter**
    Be a weather scientist! Ask for a temperature in Celsius and save it in a box. Check if it’s not below -273 (impossible!). Convert it to Fahrenheit (multiply by 9/5, add 32) and show it. Do this for the input and the next 4 numbers (like input+1, input+2). Repeat 5 times and use a choice to check.

48. **Nested Color Game**
    Make a color guessing game! Create a locked box called “favorite color” set to “blue.” Give 3 tries to guess a color and save it in a box. If it’s “blue,” say, “Correct!” and stop. If it’s “green,” say, “Close!” If it’s anything else, say, “Wrong!” Repeat 3 times and use choices inside choices.

49. **Sum of Multiples**
    Add special numbers! Go through numbers from 1 to 50, saving each in a box. If a number divides by 3 or 5 evenly, add it to a box that keeps the total, starting at 0. Repeat for all numbers and show the final total. Use choices to check.

50. **Number Pyramid**
    Build a number pyramid! Show “1” on the first line, “2 2” on the second, “3 3 3”

on the third, and “4 4 4 4” on the fourth. Use a box for the line number and another for how many times to show the number. Repeat for 4 lines and repeat numbers in each line.

Have fun coding, enjoy your holiday and have a blast!