1. Download Sudoku.m and Sudoku.fig. Accomplish the following tasks to design a 4-by-4 Sudoku puzzle.

   (a) Draw a flow chart for initialization of a 4-by-4 Sudoku game. Let C denote the output of the flow chart. Then there exists one and only one cell in each row or column that is filled with a digit belonging {1,2,3,4}. Four active elements in C must contain four different digits.

   (b) Write a matlab function to implement the flow chart of generating a new Sudoku game.

   (c) Revise sudoku.m to display the 4-by-4 matrix created by your matlab function for game initialization if the button 'NEW' is pressed.

   (d) Draw the flow chart of checking row validity and write a matlab function to implement the flow chart.

   (e) Draw the flow chart of checking column validity and write a matlab function to implement the flow chart.

   (f) Draw the flow chart of checking block validity and write a matlab function to implement the flow chart.

   (g) Call matlab functions for checking row, column and block validity and display the result if the button 'CHECK' is pressed.

2. Let f_n denote the Fibonacci.

$$\begin{aligned} f_n &= f_{n-1} + f_{n-2}, \text{ if } n \geq 2 \\ f_0 &= 0, f_1 = 1. \end{aligned}$$

   (a) Draw the flow chart of calculating f_n for given n.

   (b) Write a matlab function to implement your flow chart.

   (c) Give two examples to test your matlab function.

3. Let A be an n-by-n matrix and $\det(A)$ denote the determinant of matrix A.

   (a) Define $\det(A)$ recursively.

   (b) Draw the flow chart of determining $\det(A)$.

   (c) Write a matlab function to implement the flow chart of determining $\det(A)$.

   (d) Give two examples to test your matlab function.