import java.util.\*;

public class Main

{ public static boolean solveSudoku(char[][] board){

for(int i=0;i<9;i++){

for(int j=0;j<9;j++){

if(board[i][j]=='.'){ //. representing the empty cell in which number is to be filled

for(char c='1';c<='9';c++){

if(isValid(board,i,j,c)){

board[i][j]=c;

if(solveSudoku(board))

return true;

else

board[i][j]='.';

}

}

return false;

}

}

}

return true;

}

public static boolean isValid(char[][] board,int row,int col,char c){

for(int i=0;i<9;i++){

if(board[i][col]==c) return false; // to check downwards and upwards(vertical check)

if(board[row][i]==c) return false; // to check leftwards and rightwards(horizontal check)

if(board[3\*(row/3) +i/3][3\*(col/3)+i%3]==c) return false; //to check the 3cross3 cell

}

return true;

}

public static void main(String[] args) {

char[][] board= {

{'9', '5', '7', '.', '1', '3', '.', '8', '4'},

{'4', '8', '3', '.', '5', '7', '1', '.', '6'},

{'.', '1', '2', '.', '4', '9', '5', '3', '7'},

{'1', '7', '.', '3', '.', '4', '9', '.', '2'},

{'5', '.', '4', '9', '7', '.', '3', '6', '.'},

{'3', '.', '9', '5', '.', '8', '7', '.', '1'},

{'8', '4', '5', '7', '9', '.', '6', '1', '3'},

{'.', '9', '1', '.', '3', '6', '.', '7', '5'},

{'7', '.', '6', '1', '8', '5', '4', '.', '9'}

};

solveSudoku(board);

for (int i = 0; i < 9; i++) {

for (int j = 0; j < 9; j++)

System.out.print(board[i][j] + " ");

System.out.println();

}

}

}