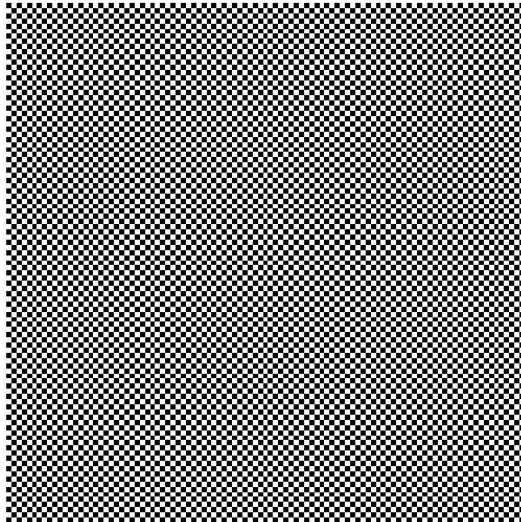


Final Exam

Task 1 (25 points)

Given a zero matrix of size 101 by 101 (`g=zeros(101, 101)`), create the following checkboard pattern (see image below), where the black color represents zeros and white color represents ones.

Hint: Afterwards you can use `imshow(g)` to display the result.

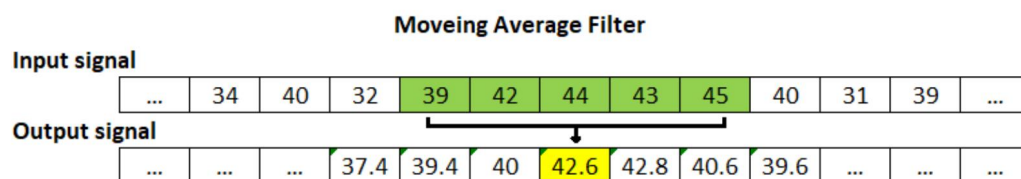


Task 2 (25 points)

Set “rng” as 0 as in the hint below. And, create a random signal using the code in the same hint. Then, remove noise from the signal using moving average filter with window size 5, see provided figure for more details. Plot the initial signal and filtered signal in the same plot. Add legend and titles for the axes (x axis - Time, y axis - Amplitude).

Hint: `rng(0); signal = 50*rand(100,1);`

Hint2: You can keep first 2 and last 2 values of the output signal the same with input.



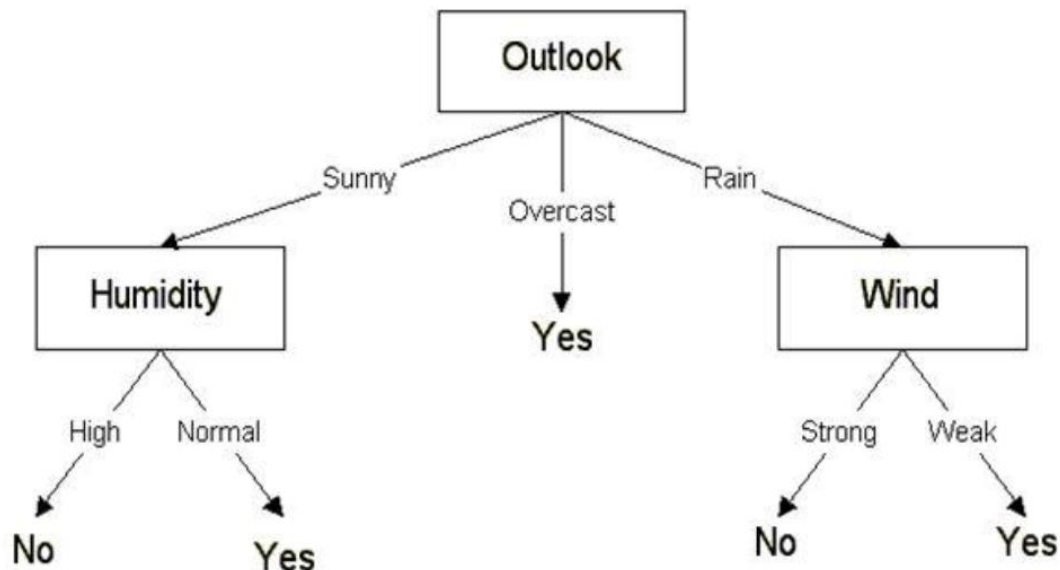
Task 3 (25 points)

Write a function called `indexMaxAll` which accepts a vector or a matrix and finds the indices of all the maximum elements of the vector or matrix. And returns the indices and the maximum value as two outputs. For example:

`[-5 8 1 3 -2 8 0 4 -8 7 8 1]` => function returns: `[2 6 11]` and `8`

Task 4 (25 points)

You have a friend who wants to play golf every day, but sometimes it is not possible due to bad weather conditions. He has asked you to calculate how much money he has spent during the last month on the golf field entry tickets (one ticket costs 10 euro). Your friend also described his decision process (based on the weather conditions) for going or not going to play golf for a particular day. His decision making process is given in the below figure.



Define a variable called "record" as below and use it as your input (You can just copy paste from here).

record =

```
'SNSRHSRNWONSSHSONWSNSRHWSHWRHWONWSHWONSSHWOHSRHSRHSRNSONWRNSONSSNSOH  
SONWONSSNSRHWOHWRNSOHW';
```

This record shows the weather conditions for everyday in the last month. Every 3 character in a row stands for the record of a single day for outlook, humidity, and wind respectively. For example, first three characters 'SNS' stands for "Sunny", "Normal", "Strong". This means he played golf in the first day because the weather is "Sunny" and humidity is "Normal".

Write your code so that it implements the given logic to calculate how much money he has spent in the last month.