

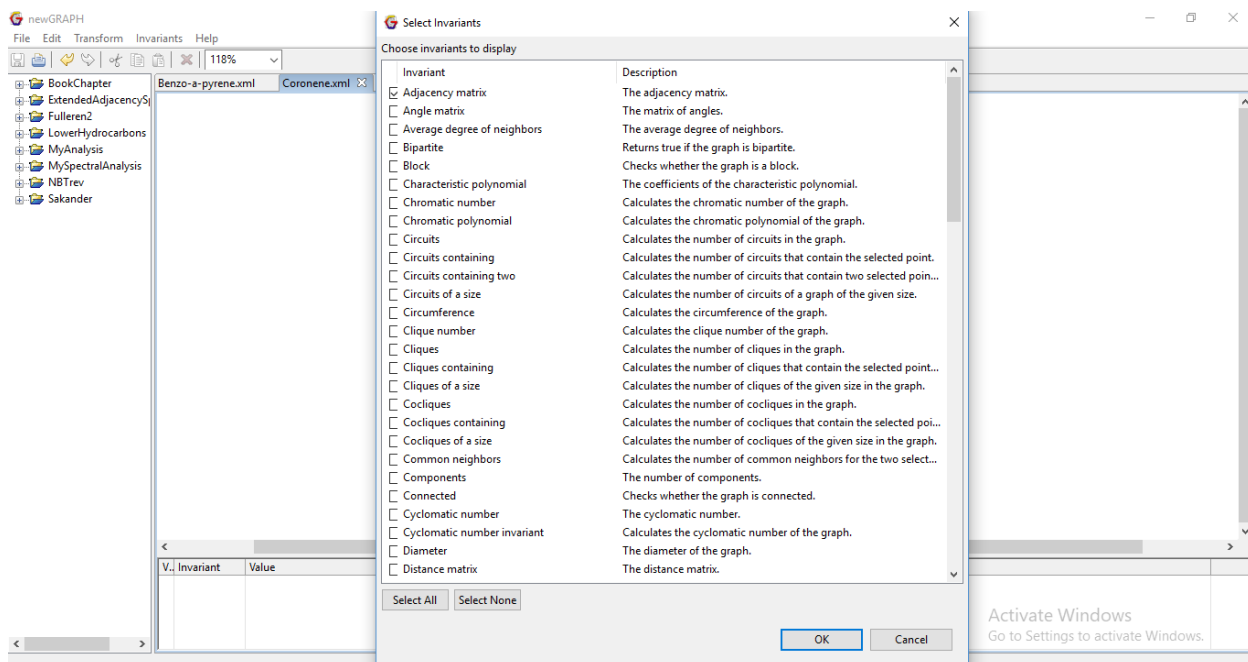
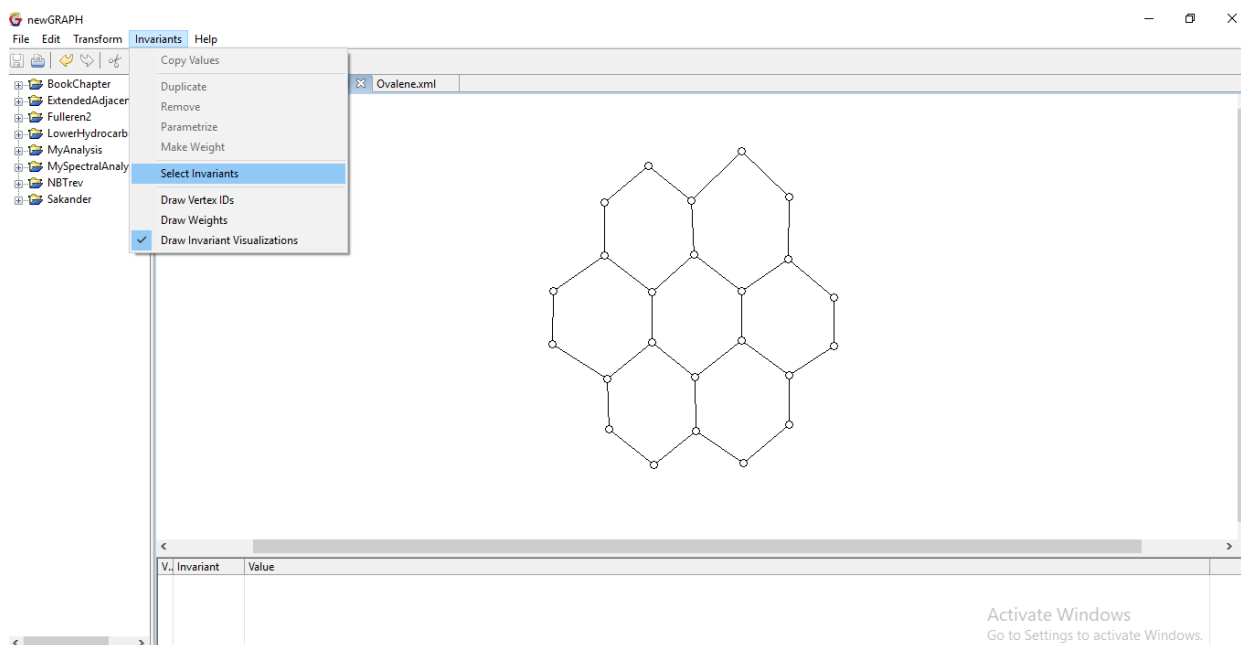
Workflow of our proposed method with a Minimal Working Example (MWE)

In this document, we will explain the working pattern of our technique to compute certain spectrum-based topological descriptors of graphs.

1. Let G be a graph for which you want to compute a spectrum-based topological index from the following list of indices:
 - i. Energy
 - ii. Estrada index
 - iii. Positive inertia index
 - iv. Negative inertia index
 - v. Nullity
 - vi. Signature
 - vii. Laplacian spectral radius
 - viii. Laplacian energy
 - ix. Laplacian Estrada index
 - x. Signless Laplacian spectral radius
 - xi. Signless Laplacian energy
 - xii. Signless Laplacian Estrada index
 - xiii. Extended adjacency spectral radius
 - xiv. Extended adjacency energy
 - xv. Randić' spectral radius
 - xvi. Randić' energy
 - xvii. Sum-connectivity spectral radius
 - xviii. Sum-connectivity energy
 - xix. Atom-bond connectivity spectral radius
 - xx. Atom-bond connectivity energy
 - xxi. Geometric-arithmetic spectra radius
 - xxii. Geometric-arithmetic energy
 - xxiii. Arithmetic-geometric spectral radius
 - xxiv. Arithmetic-geometric energy
 - xxv. First Zagreb spectral radius
 - xxvi. First Zagreb energy
 - xxvii. First Zagreb Estrada index
 - xxviii. Second Zagreb spectral radius
 - xxix. Second Zagreb energy
 - xxx. Second Zagreb Estrada index
 - xxxi. Harmonic spectral radius
 - xxxii. Harmonic energy
 - xxxiii. Harmonic Estrada index

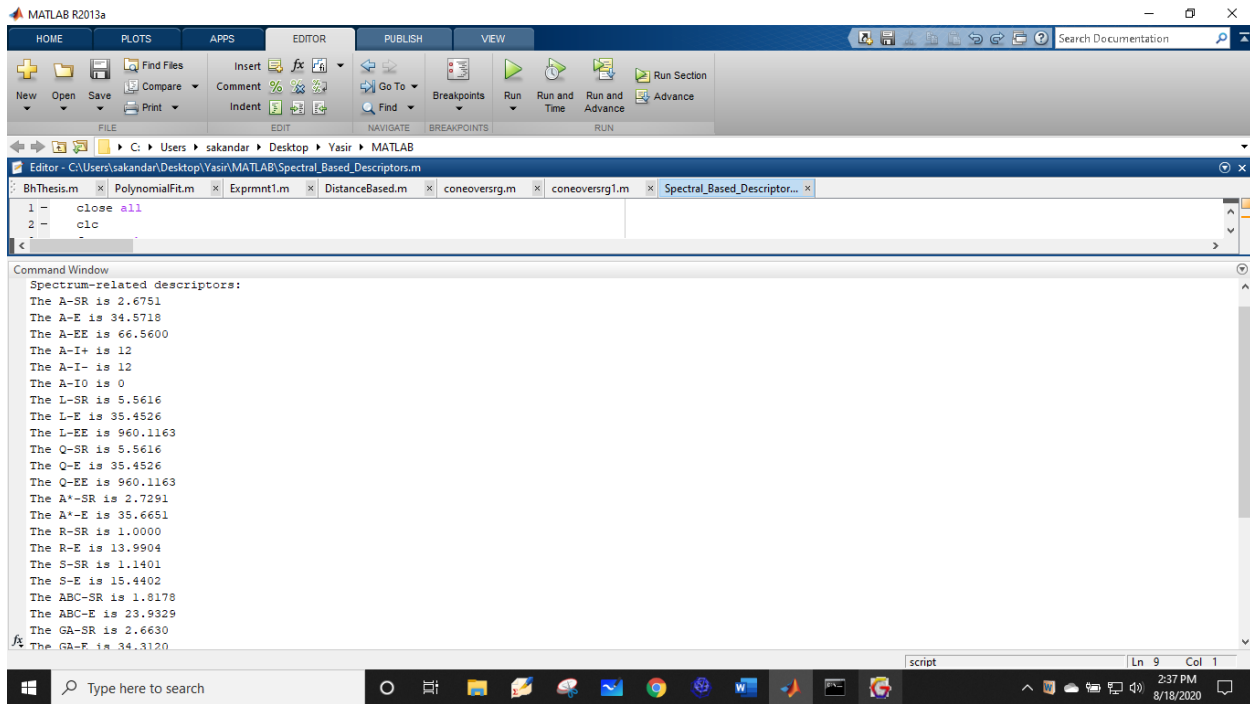
We would like to set the coronene graph as our MWE.

2. In first step, we draw graph G on newGraph and choose “Adjacency matrix” and “Vertices” as “Select Invariants” under the “Invariants” tab as follows:



3. By right clicking on the matrix values, select “Copy Values” as follows:

5. Click “run” to obtain the result as follows:



The image shows the MATLAB R2013a interface. The Editor window displays a script named `Spectral_Based_Descriptor.m` with the following code:

```
1 - close all
2 - clc
```

The Command Window shows the output of the script, listing various spectrum-related descriptors and their values:

```
Spectrum-related descriptors:
The A-SR is 2.6751
The A-E is 34.5718
The A-EE is 66.5600
The A-I+ is 12
The A-I- is 12
The A-I0 is 0
The L-SR is 5.5616
The L-E is 35.4526
The L-EE is 960.1163
The Q-SR is 5.5616
The Q-E is 35.4526
The Q-EE is 960.1163
The A*-SR is 2.7291
The A*-E is 35.6651
The R-SR is 1.0000
The R-E is 13.9904
The S-SR is 1.1401
The S-E is 15.4402
The ABC-SR is 1.8178
The ABC-E is 23.9329
The GA-SR is 2.6630
The GA-E is 34.3120
```

The status bar at the bottom indicates the current position is Line 9, Column 1.