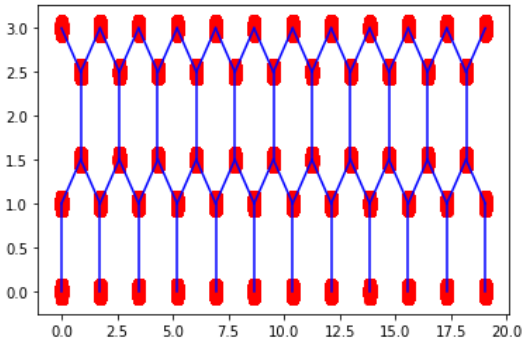
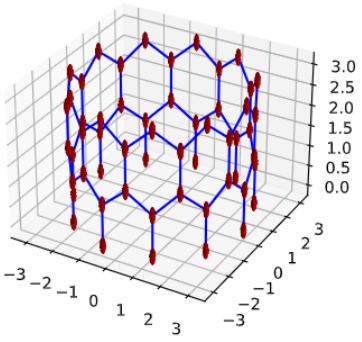
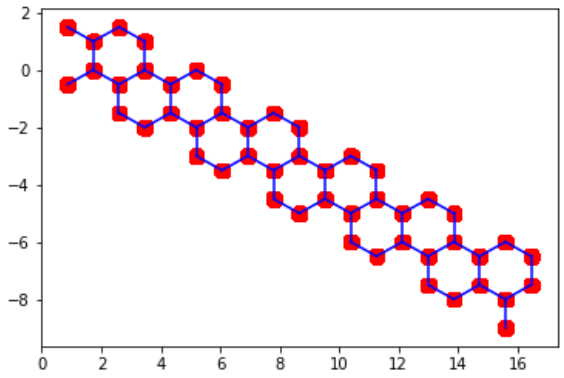
Min Length: 3

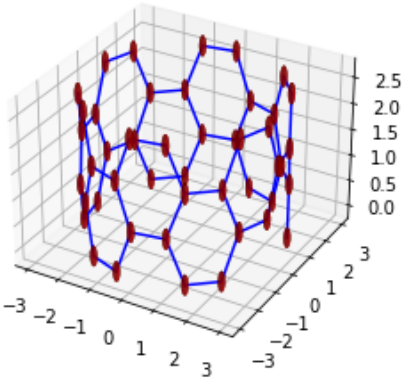
Minimum Zigzag Value: 11 Pictures rendered with **Graphene(11, 0, 3)**





Minimum Armchair Value: 6 Pictures rendered with **Graphene(6, 6, 3)**





Method of finding Result:

- For length 4 angstroms / 1.42 angstroms = 2.82; therefore, l = 3
- We know the radius of our drug is 4 angstroms.
- We can find the diameter of the drug by taking 2*4 and we get 8 angstrom.
- Divide this number by 1.42 to get the units we actually need. This value turns out to be ~ 5.64.
- Set 3 variables (tubrad, minzigzag, and minarmchair) all to zero.
- Define a while loop (for zigzag) that iterates while our tube diameter is less than the drug diameter.
    - In the while loop increment zigzag by 1 and define an object as CarbonFiller(minzigzag, 0, 0).
    - Use the normVector function to find the arclength of this object and calculate tubdia by taking (arclength / pi).
    - Once tube diameter is greater than or equal to the drug diameter, the while loop stops and our minimum zig zag value is attained.
- Reset the tube diameter value to zero and repeat the while loop for our armchair values. The only difference being that we define our object as CarbonFiller(minarmchair, minarmchair, 0).

  This implementation (see code under if __name__ == “__main__”:) yields a minzigzag value of 11 and minarmchair value of 6.

  Define (pos_gr, pos_nt) for zigzag and armchair by calling in Graphene
  Plot each of the pos variables to display the graphene sheet and nanotube.