- Once the relevant characteristics ($n, m, p, q, r, \ldots$) have been selected, we can define what a step is. A step is any computation unit that is independent of the characteristics ($n, m, p, q, r, \ldots$). Thus, 10 additions can be one step; 100 multiplications can also be one step; but n additions cannot. Nor can m/2 additions, p+q subtractions, etc. be counted as one step.

For many programs, the time complexity is not dependent solely on the no. of inputs or outputs or some other easily specified characteristic.

- Consider the function binsearch. This function searches an ordered list. We would like to know how the computing time changes as we change the no. of elements n.

- The parameter n is inadequate. For the same n, the step count varies with the position of the element searchnum that is being searched for.

- The best case step count is the minimum no. of steps that can be executed for the given parameters. The worst-case step count is the max. no. of steps that can be executed for the given parameters. The average step count is the average no. of steps ~~that can be~~ executed on instances of the given params.

Exercise 1.5.2

1) Redo Exercise 2, Section 1.3 (Horner's rule for evaluating polynomials), so that step counts are introduced into the function. Express the total count as an equation.

Soln:

```
long Horner_Rule(int coeff[], int n, int begin, int x_0)
{
  count++; //for if statement
  if(begin==n-1){
    count++; // for return statement
  return coeff[begin];}
  else
  {                  // for else and return
  count=count+2;
  return coeff[begin]+ x_0*
  Horner_Rule(coeff,n,begin+1,x_0);
}
```