Your task in this programming assignment is to model the curve defined by the profile in the following figure using the second spline interpolation technique introduced in class.

To do this you need to
1. take \( m + 1 \) points \((x_i, f_i), i = 0, 1, \ldots, m + 1\), from the curve. This will be data to be read in.
2. Solve a system of \( m + 1 \) equations to find \( b_i, i = 1, 2, \ldots, m + 1 \).
3. Compute \( d_i, i = 1, 2, \ldots, m \).
4. Compute \( c_i, i = 1, 2, \ldots, m \).
5. Form \( P_i(x), i = 1, 2, \ldots, m \).

Then, render \( P_i(x), i = 1, 2, \ldots, m \). For each \( i \), this is done by computing the value of \( P_i(x) \) at a few (say, 3) points between \( x_i \) and \( x_{i+1} \), and connect these points with line segments.

With regard to 1, use the grid I have superimposed on the curve to define the numerical coordinates of the points. A general rule-of-thumb in positioning the points is as follows: place more points on those parts of the curve which oscillate most, and fewer points on smoothly varying parts. Use no less than 10 points! (That is, \( m \geq 9 \))
Mail me your program before or on the due date and hand in a plot with the following information:

1. The number \((m+1)\) of points;
2. The points \((x_i, f_i), i = 0, 1, ... m + 1\);
3. The additional points \(x\) at which you have chosen to evaluate each \(P_i(x)\). Plot these points.

Grading:

- Correctness of program & results = 80%
- Efficiency (storage & work) = 15%
- Neatness & readability = 5%