EAST WEST UNIVERSITY

Project Report

Problem set : **1**

Course Title: Numerical Methods

Course Code: CSE225

Section: 04

Submitted to:

Yeasir Rayhan

Lecturer, Department of Computer Science and Engineering

East West University

Submitted by:

MD MANIA AHMED JOY

ID: 2018-1-60-042

MD FERDOUS

ID: 2018-1-60-098

Date of submission: 25-08-2019

By plotting the graphs we can see than only for 5th order this go through all the point. As there are 6 hole in the plate at least the equation will have to be of 5th order.

As we can see between the Newton's Divided Difference Polynomial and Lagrange's Polynomial of 5th order we get the following graph respectively:
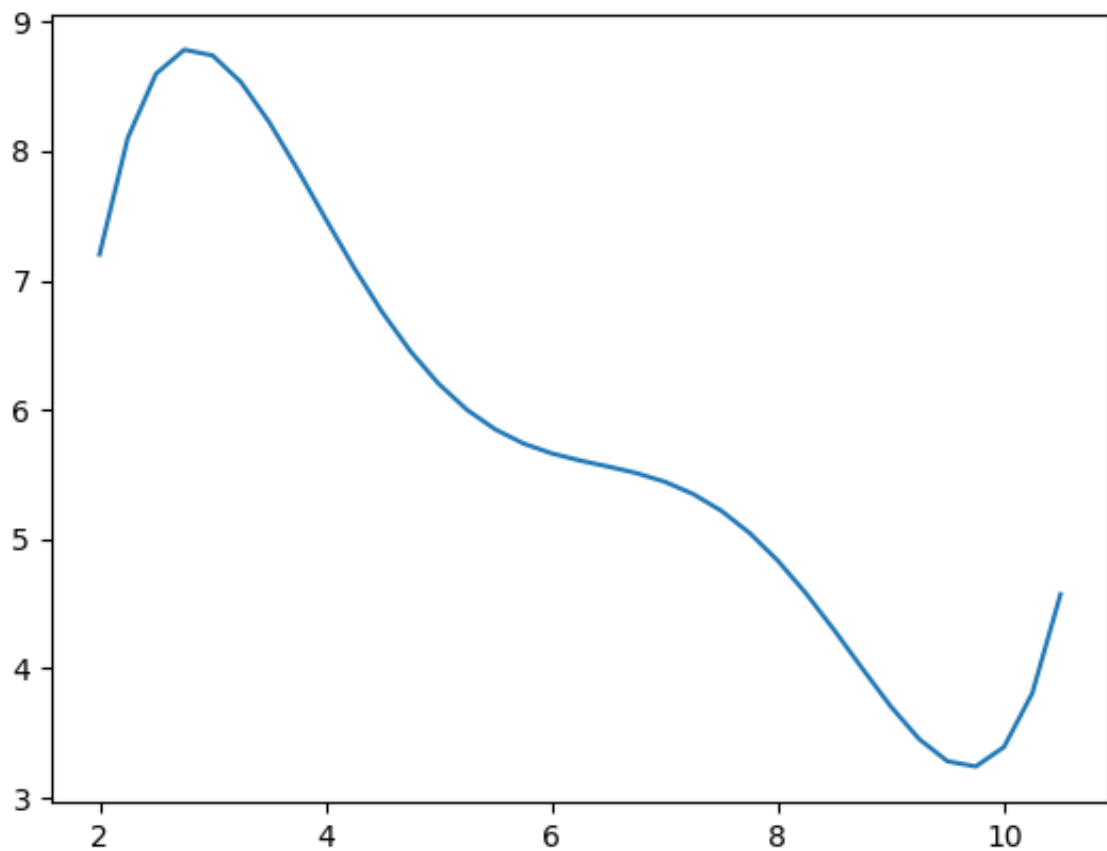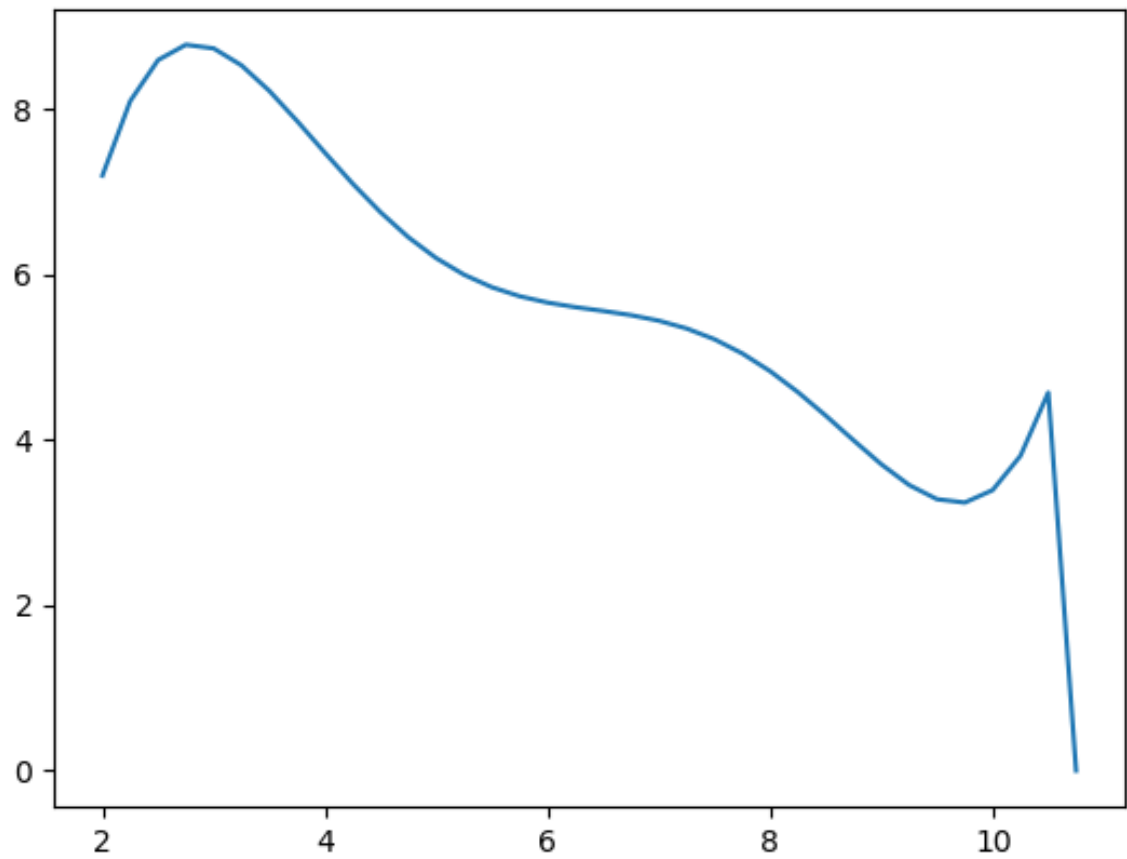
It shows that for Lagrange's Polynomial it will not be easy for the robot to move because the path is not much smooth. So between these two Newton's Divided Difference Polynomial is the best method for the robot to visit to check quality.

Again from the Splines 5th order polynomial by using the python built in function we get the following graph:
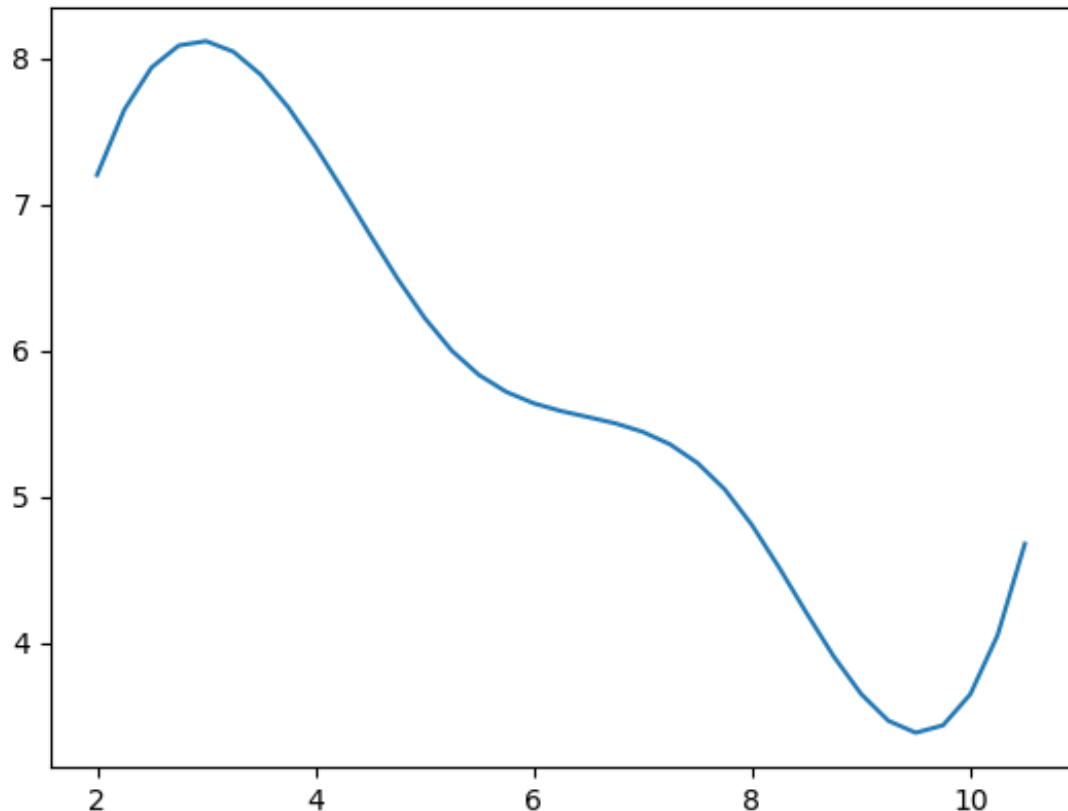
Although both the graph are almost same if we look very closely we will see that the smoothness of the graph generated from spline is more smooth than the graph generated from Newton's Divided Difference Polynomial. So in this case Spline interpolation is the best option to estimate the best possible trajectory for the robot to visit.