Programming of a custom geoprocessing tool for the ArcGIS platform with Python

Topic : Determine the distance and bearing of a set of points to a given point and write it to the attribute table.

Task: The aim of this assignment is to develop a custom geoprocessing tool for ArcGIS Platform (ArcMap) using Python. The task of the geoprocessing tool is to Determine the distance and bearing of a set of points to a given point and write it to the attribute table.

Process

To create a new custom geoprocessing tool need some process and functionality. At the begging , create a customize toolbox and this toolbox need some parameters like as input feature class, output feature class and some other parameters based on tools requirement. To active the customize tool need to add script file in the toolbox .In ArcGIS support python script file(.py) which is the source file for the customizing tool and this file contain the all function of the tools . All the function written by the python programming language for executing a custom tool is embedded in a script file. After adding a script file, for testing double click the script file and give the parameter according to the tool requirements .if the
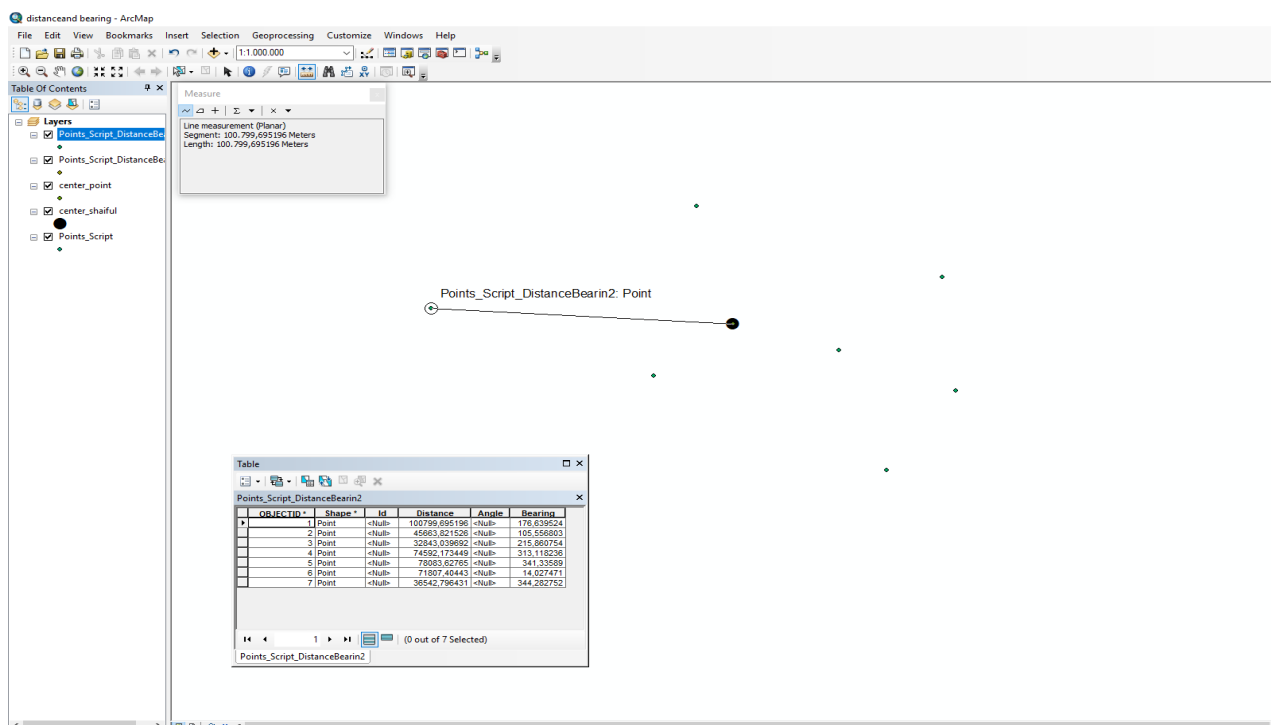

Figure 1 Determine the distance and bearing of a set of points to a given point and write it to the attribute table result

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script file run complete without error, than sure your customize tools work successfully .

In order to make the created custom geoprocessing tool useful and helpful to understand what exactly the tool does, a documenting of a tool and toolbox should be done. This documentation consists the metadata and help pages for toolbox and tool. The result of html documentation is shown in figure 2.

DistanceBearing

Title DistanceBearing

Summary
Determine the distance and bearing of a set of points to a given point and write it to the attribute table.

Usage
ArcGIS geoprocessing tool that determines the distances from input point features to all points in the near features. It is very important tools of Spatial Analysis tools.The input source data can be a feature class or raster.I can't seem to find to measure bearing in ArcGIS tools.The main focus to this tool create a mathematical model that can be used for calculating distance and bearing.

Syntax
DistanceBearing (inputFC, centerpoint, output)

Parameter	Explanation	Data Type
inputFC	**Dialog Reference** Input a set of points **Python Reference** Input a set of points	Feature Layer
centerpoint	**Dialog Reference** Input a center point of feature class **Python Reference** Input a center point of feature class	Feature Layer
output	**Dialog Reference** Calculate the Distance and Bearing of a set of points relative to center point **Python Reference** Calculate the Distance and Bearing of a set of points relative to center point	Feature Class

Code Samples

Samples code for Distance and bearing calculation of points
There are samples code for this tool(Determine the distance and bearing of a set of points).

Figure 2 shows html documentation of a custom geoprocessing tool.