

```
For Each pt As point3d In input_pt
```

```
Dim output_pts As New List(Of Point3d)
```

```
output_pts.Add(pt)
```

```
Dim output_pt As point3d
```

```
Do
```

```
outputpoint(base_srf, pt, distance_factor, output_pt)
```

```
output_pts.add(output_pt)
```

```
pt = output_pt
```

```
If output_pts.Count > 100 Then
```

```
Exit Do
```

```
End If
```

```
Loop While outputpoint(base_srf, pt, distance_factor, output_pt) = True
```

```
Dim output_crv As New PolylineCurve(out
```

```
output_crvs.Add(output_crv)
```

```
Next
```

```
A = output_crvs
```

## DIGITAL DESIGN WORKSHOP //

### S03 VB SCRIPTING

@ SAMOO ARCHITECTS & ENGINEERS / 20180830

```
End Sub
```

```
/**/
```

```
Private Function outputpoint(ByVal base_srf As Surface, ByVal input_pt As Point3d, ByVal distance_factor As Double, ByRef A As Object) As Boolean
```

```
Dim u, v As Double
```

```
base_srf.ClosestPoint(input_pt, u, v)
```

```
Dim normal_vector As New Vector3d(base_srf.NormalAt(u, v))
```

```
Dim translation_vector As vector3d = vector3d.CrossProduct(normal_vector, vector3d.ZAxis)
```

```
translation_vector.Unitize
```

```
translation_vector.Transform(Transform.Rotation(Math.PI * 0.5, normal_vector, input_pt))
```

```
Dim moved_pt As point3d = input_pt + distance_factor * translation_vector
```

```
base_srf.ClosestPoint(moved_pt, u, v)
```

```
Dim output_pt As Point3d = base_srf.PointAt(u, v)
```

## Session 03 : VB Scripting

Monday, August 6, 2018 2:59 PM

### Visual Basic & APIs in Rhino

- Visual basic is a programming language that deals with windows API
- APIs in Rhino
  - RhinoCommon
  - Grasshopper
  - Rhino Script Syntax (Python)
  - Rhino Script

### Visual Basic

- Variables
- Declaration - Class, Object, Instance
- Statements
- Loops
- Array
- Procedures - Sub vs Function

### RhinoCommon API

- Namespaces
- Classes
- Constructors
- Properties
- Methods

### Grasshopper API

- A collection of classes that doesn't exist in native Rhino API

### Communicating with Rhino Objects in VB

- `doc. / rhino.rhinodoc.activedoc`

### Examples

- Converting 1d array to data tree in Grasshopper VB
- Simple component reacting surface curvature
- Drainage simulation