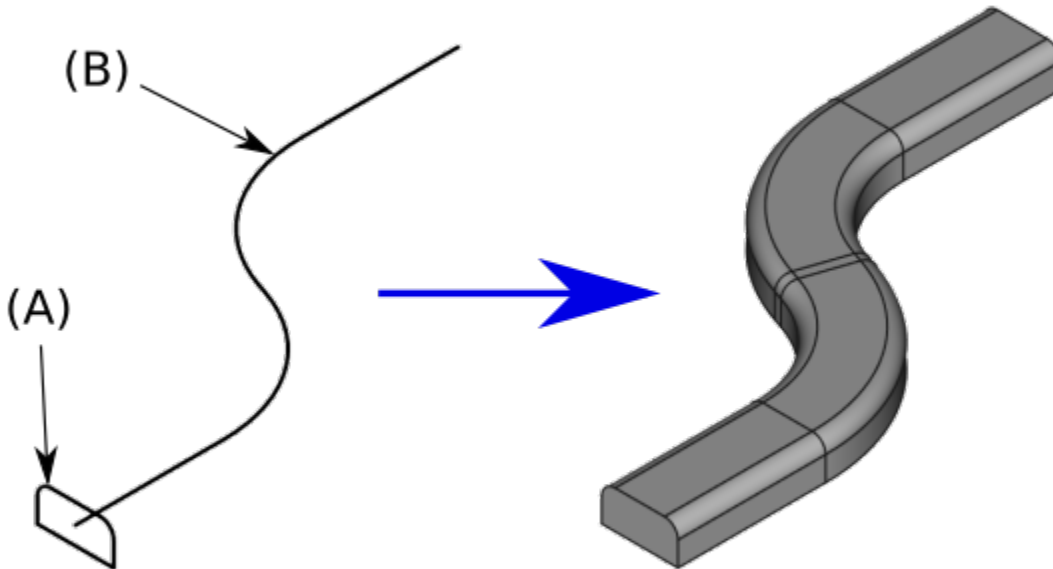


# Assignment 2IMV10 - sweep objects



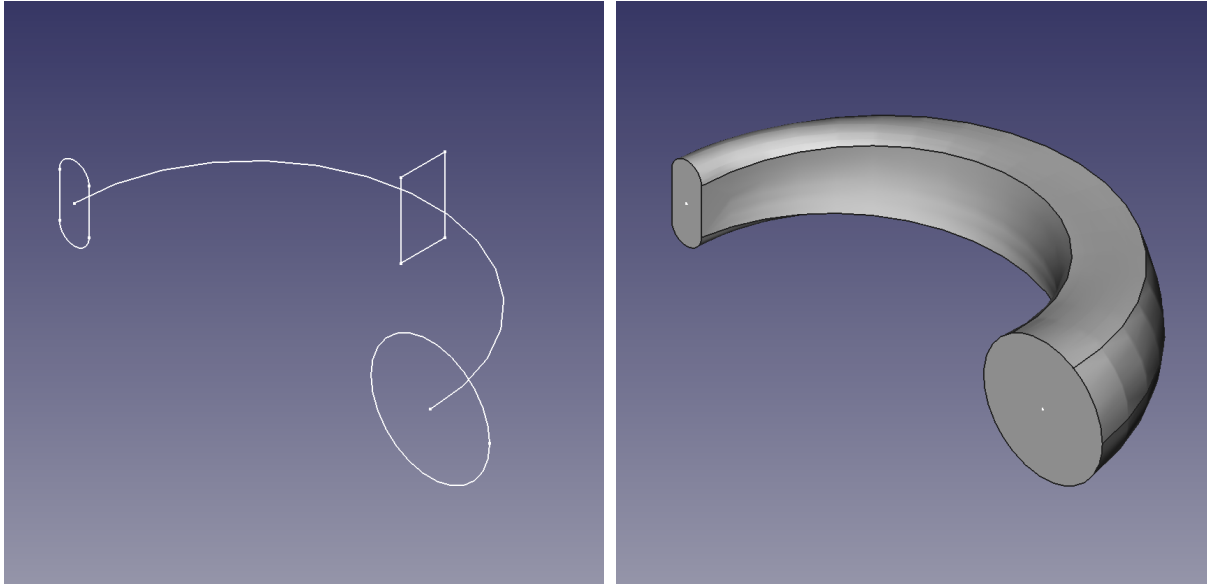
picture taken from: [https://wiki.freecadweb.org/File:Part\\_Sweep\\_simple.png](https://wiki.freecadweb.org/File:Part_Sweep_simple.png)

A sweep operator can be used for modelling 3D shapes. It uses a cross section (A) and a sweep line (B) as input to create a 3D shape, see figure. This general operation can be extended by taper, twist, and warp parameters, used for scaling, rotating, and morphing (see figures below) the cross section along the sweep line.

Possible requirements in no particular order:

1. a generic implementation of sweeping
2. well designed interactivity
3. (advanced) rendering of the object in an interactive viewer
4. inspection of the object by manipulating its orientation and by clipping parts of it away using a cutting plane
5. animation of the sweeping process by varying parameters over time
6. define cross section and sweep line interactively
7. interpolate between cross sections
8. apply colors, textures, ...

9. add more parameters to influence the geometric or visual outcome.
10. export to 3D object format (e.g. obj), to image format (e.g. png)
11. Gallery of results



pictures taken from: <https://www.xsim.info/articles/FreeCAD/en-US/HowTo/Create-a-solid-with-sweeping.html>