```
                                          ┌──────────────────────┐
                                          │        Main()        │
                                          └──────────┬───────────┘
                                                     │
                                          ┌──────────▼───────────┐
                                          │ Define struct FontData│
                                          │ to hold stroke        │
                                          │ coordinates ( x, y, z)│
                                          └──────────┬───────────┘
                                                     │
                                          ┌──────────▼───────────┐
                                          │      open file        │
                                          │ ("SingleStrokeFont.txt")│
                                          │      to read          │
                                          └──────────┬───────────┘
                                                     │
                                          ┌──────────▼───────────┐
                                          │   Call function       │
                                          │   CheckFileIsOpen     │
                                          └──────────┬───────────┘
                                                     │
                                          ┌──────────▼───────────┐
                                          │  Call function Populate│
                                          │    FontDataArray      │
                                          └──────────┬───────────┘
                                                     │
                                          ╱──────────▼───────────╲
                                          │ User input for font size│
                                          │    between 4-10mm      │
                                          ╲──────────┬───────────╱
                                                     │
                                          ┌──────────▼───────────┐
                                          │   Call function        │
                                          │   Create scaling factor│
                                          └──────────┬───────────┘
                                                     │
                                          ┌──────────▼───────────┐
                                          │   Call function        │
                                          │   ApplyScaleFactor     │
                                          └──────────┬───────────┘
                                                     │
                                          ┌──────────▼───────────┐
                                          │   Ask the user for the │
                                          │   file text name       │
                                          └──────────┬───────────┘
                                                     │
                                          ┌──────────▼───────────┐
                                          │    Open text file      │
                                          └──────────┬───────────┘
                                                     │
                                          ┌──────────▼───────────┐
                                          │   Call function        │
                                          │   CheckFileIsOpen      │
                                          └──────────┬───────────┘
                                                     │
                                          ◇──────────▼───────────◇
Close file ◄─── Yes ──┤ Have you reached the end of the file? │
                                          ◇──────────┬───────────◇
                                                     │ No
```

Function CheckIfFileIsOpen

Does file = Null
- No → Return 0
- Yes → Print "error opening file" → Return 1

Function Create scaling factor

Is font size 4<=x<=10
- No → Print("Input value must be between 4-10mm") → Return 1
- Yes → Create scaling factor = user input / 18 → return 0

Function GetASCIIValue

convert Character to ASCII Value → Return 0

Function RetrieveCharacterData

Search in FontDataArray for next value of 999

Does second item in struct = ASCII Value?
- No → (loop back to Search in FontDataArray)
- Yes → Set NumMovements = 3rd value in struct → Set i = First line of character movements in FontDataArray

i = NumMovements?
- yes → Return 0
- No → Store struct in outputMovementArray → i++ → (loop back to i = NumMovements?)

Function ApplyScaleFactor

Mulitply X and Y values in FontDataArray by ScaleFactor → Return 0

Function CalculateWordWidth

WordWidth = last - first x coordinate in outputMovementArray → Return 0

Function PopulateFontDataArray

Set i =1

Read value and assign to FontDataArray in structs of FontData(x,y,z)

i=i+1

i=filesize?
- No → (loop back to Read value and assign)
- Yes → Close file → Return 0

Function CalculateRemainingWidth

Space remaining = 100mm - final x coordinate of previous word → Return 0

Function Generate G code

Read OutputMovementArray one line at a time → Convert each struct into corresponding G-Code string → Store each string in a Array of strings with the same size as outputMovementArray → Return 0

Function Wrap text onto new line

Reset X coordinate to the beginning of the line → Move the y coordinate down by 5mm → Return