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appVersion(-4) = "0.98.6128.10018"
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appVersion(-4) = "0.98.6128.10018"
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```
appVersion(4) = "1.0.8348.30405"
```

1. Import Water Level Data (from EXCEL file)

```
t0 := time(0)
```

Directory of Excel file to import

```
MyDirectory := DocumentDirectory("") = "D:\Water Level\"
```

Name of Excel File

```
MyFile := concat(MyDirectory, "1.July WL&RT.xlsx")
```

To import: Sheet Name, Start cell and End cell

```
WL := importDataXLXS(MyFile, "WL", "C5", "AX35")
```

Note: WL is a digital signal received at control center. The numerical values of WL have **more than 6 decimals**, whereas the **Rating Table (RT)** is calibrated only to **2 decimals**. Hence, first WL values have to be refined to 2 decimals for use with RT values. Otherwise, "findrows()" function will return zero values.

Pl see **Program 1**

WL imported Water :eve;s (Only part shown)

$$WL = \begin{bmatrix} 0.85000002 & 0.74000001 & 0.74000001 & 0.75 & 0.73000002 & 0.72000003 & 0.72000003 \\ 0.72000003 & 0.70999998 & 0.69 & 0.69999999 & 0.70999998 & 0.72000003 & 0.69999999 \\ 0.67000002 & 0.70999998 & 0.69999999 & 0.69999999 & 0.68000001 & 0.68000001 & 0.69 \\ 0.67000002 & 0.67000002 & 0.67000002 & 0.68000001 & 0.69999999 & 0.68000001 & 0.67000002 \\ 0.67000002 & 0.67000002 & 0.66000003 & 0.68000001 & 0.68000001 & 0.67000002 & 0.67000002 \dots \\ 0.86000001 & 0.89999998 & 0.89999998 & 0.88999999 & 0.93000001 & 0.89999998 & 0.89999998 \\ 0.88999999 & 0.89999998 & 0.94999999 & 0.98000002 & 0.89999998 & 0.89999998 & 0.87 \\ 0.63999999 & 0.63 & 0.63 & 0.64999998 & 0.63999999 & 0.63 & 0.62 \\ & & & \vdots & & & \ddots \end{bmatrix}$$

```
length(WL) = 1488
```

```
rows(WL) = 31
```

```
cols(WL) = 48
```

Similarly, Import Rating Table to Smath

$$RT := importData_{XLXS}(MyFile, "RT", "B4", "C404") = \begin{bmatrix} 0.5 & 4.3 \\ 0.51 & 4.57 \\ 0.52 & 4.84 \\ 0.53 & 5.11 \\ 0.54 & 5.38 \\ 0.55 & 5.65 \\ 0.56 & 5.92 \\ 0.57 & 6.19 \\ \vdots & \end{bmatrix}$$

```
rows(RT) = 401
```

```
cols(RT) = 2
```

Example

```
findrows(RT, 0.52, 1)2 = 4.84
```

Program 1 : Convert Water levels to equivalent flows

```
Find_Q(wl, rt) :=
  for j ∈ [1..rows(wl)]
    for k ∈ [1..cols(wl)]
      wllj k := round(wlj k, 2)
      qj k := findrows(rt, wllj k, 1)2
    q
```

$Q := \text{Find_Q}(WL, RT)$

$Q =$

16.75	11	11	11.5	10.5	10	10	10	10.5
10	9.5	8.8	9	9.5	10	9	9	9
8.4	9.5	9	9	8.6	8.6	8.8	8.8	8.8
8.4	8.4	8.4	8.6	9	8.6	8.4	8.6	8.4
8.4	8.4	8.2	8.6	8.6	8.4	8.4	8.2	8
17.3	19.5	19.5	18.95	21.15	19.5	19.5	31.6	32.8
18.95	19.5	22.25	23.9	19.5	19.5	17.85	17.85	18.95
7.8	7.6	7.6	8	7.8	7.6	7.4	7.6	7.4
16.75	20.6	19.5	19.5	20.05	20.05	19.5	21.15	21.7
13	13.5	14.55	15.65	16.75	18.95	20.05	21.15	20.6
25.6	23.35	22.8	21.7	21.7	20.6	19.5	18.4	18.95
25	23.35	23.9	26.2	27.4	27.4	27.4	25	26.8
27.4	25.6	25	25.6	24.45	26.2	26.8	31	28.6
10.5	10.5	10	11	11.5	12.5	12.5	11.5	11.5
21.15	20.6	19.5	20.05	22.25	20.05	25	26.2	25
22.8	21.15	21.15	18.95	21.7	23.9	25.6	22.25	22.8
22.8	20.6	25.6	25.6	25.6	24.45	23.9	23.9	22.8
21.7	22.25	25	23.9	22.8	23.35	23.35	24.45	25.6
37.69	39.76	39.07	23.9	22.25	22.25	23.9	21.7	19.5
17.85	21.15	22.25	20.05	22.25	22.8	22.25	18.95	21.7
18.4	19.5	22.25	20.05	20.6	19.5	18.4	20.6	22.25
20.6	18.95	18.95	20.6	19.5	18.4	18.4	19.5	20.6
18.4	19.5	21.7	21.15	17.85	18.4	18.95	17.85	18.4

$\text{length}(WL) = 1488$

$\text{length}(Q) = 1488$

$\text{time}(0) - t0 = 1.18 \text{ s}$