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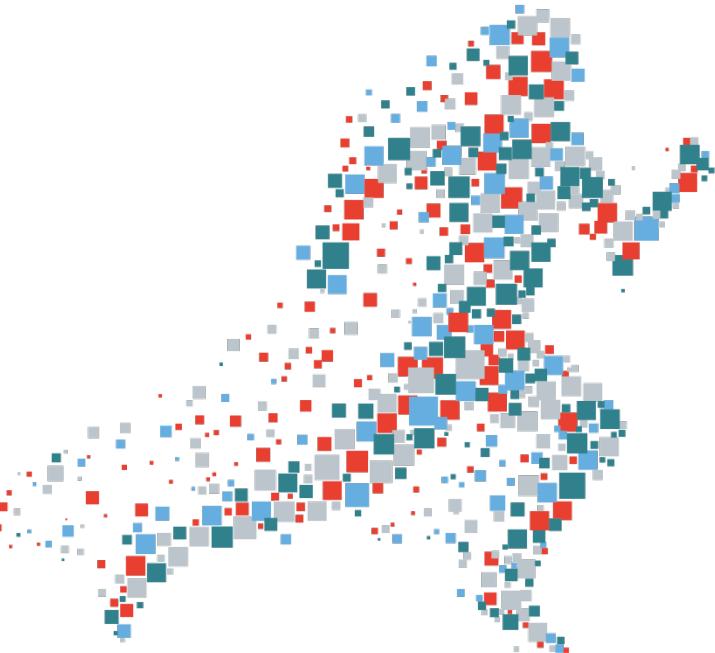
develop • faster

Fast • Efficient • Reliable

FNC Maps: More than just showing a map

Dr. Holger Flick

info@tmssoftware.com



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youtube.com/tmssoftwareTV

Holger's CV

- Delphi Developer since Delphi 2
- Diplom (Master Degree) in Computer Science
- Doctorate in Engineering
- Borland, CodeGear Delphi Team QA
- Embarcadero MVP
- GitKraken Ambassador
- TMS Chief Evangelist
- Bruno's #1 Cause of High Blood Pressure
- Author of several Delphi books



Software Development & Training

- holger@flixengineering.com
- Offices in United States and Germany



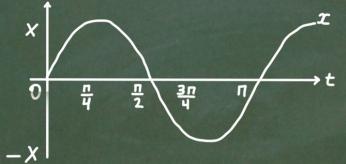
$$v = r y x^* \frac{z'}{\zeta_x}, \quad (4)$$

$$u = \frac{\sum r_{01}}{\sum q_1} + \frac{\sum r_{02}}{\sum q_2} \quad f(x) = \frac{a}{2} + \sum_{n=1}^{\infty} (a_n \cos nx + b_n \sin nx)$$

$$r_i = \frac{\sum_{t=2}^n (\gamma_t - \bar{\gamma}_t) \cdot (\gamma_{t-1} - \bar{\gamma}_2)}{\sqrt{\sum_{t=2}^n (\gamma_t - \bar{\gamma}_t)^2 \cdot \sum_{t=2}^n (\gamma_{t-1} - \bar{\gamma}_2)^2}} \quad \beta_{yx} = r_{yx} * \frac{\sum y_t}{\sum x_t}, (4)$$

$$\varepsilon_{\text{ex}} = \frac{dQ_{\text{ex}}}{de} \cdot \frac{e}{Q_{\text{ex}}}; \quad \varepsilon_{\text{im}} = \frac{dQ_{\text{im}}}{de} \cdot \frac{e}{Q_{\text{im}}}.$$

$$\Delta NE = \frac{dQ_{ex}}{de} \Delta e - e \frac{dQ_{im}}{de} \Delta e - e Q_{im}.$$



$$x_{f_u} = \frac{\sum p_0 q_1}{\sum q_1} + \frac{\sum p_0 q_0}{\sum q_0} \quad f(x) = \frac{a_0}{2} + \sum_{n=1}^{\infty} (a_n \cos nx + b_n \sin nx)$$

$$r_t = \frac{\sum_{t=2}^n (y_t - \bar{y}_t) \cdot (y_{t-1} - \bar{y}_2)}{\sqrt{\sum_{t=2}^n (y_t - \bar{y}_t)^2} \cdot \sqrt{\sum_{t=2}^n (y_{t-1} - \bar{y}_2)^2}} \cdot \beta_{yx} = r_{yx} * \frac{\sum_{t=2}^n (y_t - \bar{y}_t) \cdot (y_{t-1} - \bar{y}_2)}{\sum_{t=2}^n (y_{t-1} - \bar{y}_2)^2}, (4)$$

$$\widetilde{G}^2(\varepsilon) = \widetilde{\zeta}^2(\varepsilon) = \frac{\sum_{i=1}^n \varepsilon_i}{n - 2n} \cdot \left(\frac{t}{\sqrt{x}} \right)^{\frac{n}{2}} \cdot \frac{\sqrt{x}}{\sqrt{x}}$$

$$\begin{aligned} \epsilon_{ex} &= \frac{dQ_{ex}}{de} \cdot \frac{e}{Q_{ex}}, \quad \epsilon_{im} = \frac{dQ_{im}}{de} \cdot \frac{e}{Q_{im}}, \quad \sqrt{\frac{g-3}{8/5}} \int \int \sqrt{x+ \sqrt{y^2 - 1}} \, dx \, dy \\ NE(e) &= Q_{ex}(e) - e Q_{im}(e), \quad \text{Integrate}[1/(x^4 + x^2 + 2)] \\ &\quad - \frac{8}{\pi} \left(y_{\pm} + \sqrt{y^2 - 1} \right)^{5/2} \left(-1 + e^{x \pm 2\sqrt{y^2 - 1}} \right) \end{aligned}$$

$$\Delta NE = \frac{dQ_{ex}}{de} \Delta e - e \frac{dQ_{im}}{de} \Delta e - e Q_{im}, \quad (4)$$

$$\begin{aligned} B(a, b) &= \int_0^1 (1-x)^{b-1} x^a dx = \\ &= \frac{x^a(1-x)^{b-1}}{a} \Big|_0^1 + \frac{b-1}{a} \int_0^1 x^a (1-x)^{b-2} dx = \\ &= \frac{b-1}{a} \int_0^1 x^{a-1} (1-x)^{b-2} dx = \frac{b-1}{a} \int_0^1 x^{a-1} (1-x)^{b-1} dx = \\ &= \frac{b-1}{a} B(a, b-1) = \frac{b-1}{a} B(a, b), \\ B(a, b) &= \frac{b-1}{a+b-1} B(a, b-1). \end{aligned}$$

$$\left. \begin{array}{l} \sum_{i=1}^n x_{i1} x_{i2} \\ \sum_{i=1}^n x_{i2}^2 \end{array} \right\} ; \quad X^T y = \left(\begin{array}{l} \sum_{i=1}^n y_i \\ \sum_{i=1}^n x_{it} y_i \\ \sum_{i=1}^n x_{i2} y_i \end{array} \right)$$

$$\int \int \sqrt{x+\sqrt{y}} \, dx dy$$

Integrate[$\frac{8}{105} (x + \sqrt{y})^{5/2} (-2x + 5\sqrt{y})$, {x, 0, Infinity}]

$$\frac{1}{56} \left(7 + \sqrt{7(-5 + 4\sqrt{2})} \right) \pi$$

$$= \frac{\sum_{t=2}^n [Y_t - Y_1] \cdot [Y_{t-1} - Y_2]}{\sum_{t=2}^n (Y_{t-1} - \bar{Y}_2)^2} \cdot \sum_{t=2}^n [Y_{t-1} - Y_2]^2$$

$$\int \sqrt{x+y} \, dx dy$$

| Integrate[1 / (x^4 + x^3 + 2), {x, 0, 2}, {y, 0, 3}]

$$\frac{8}{105} (x + \sqrt{y})^{5/2} (-2x + 5\sqrt{y})$$

(4)

$$x = f[x] = \frac{a_0}{2} + \sum_{n=1}^{\infty} (a_n \cos nx + b_n \sin nx)$$

$$(1-x)^{b-1}dx =$$

$$\begin{aligned} B(a, b) &= \int_0^1 (1-x)^{b-1} x^a dx = \\ &= \frac{x^a (1-x)^{b-1}}{a} \Big|_0^1 + \frac{b-1}{a} \int_0^1 x^a (1-x)^{b-2} dx = \\ &= \frac{b-1}{a} \int_0^1 x^{a-1} (1-x)^{b-2} dx - \frac{b-1}{a} \int_0^1 x^{a-1} (1-x)^{b-1} dx = \\ &= \frac{b-1}{a} B(a, b-1) - \frac{b-1}{a} B(a, b), \end{aligned}$$

$$B(a, b) = \frac{b-1}{a+b-1} B(a, b-1).$$

$$\frac{9-3}{8/5} = \int \int \sqrt{x+\sqrt{y}}$$

Integrate[1]

$$\nabla X = \begin{pmatrix} h & \sum_{i=1}^n x_i \\ \sum_{i=1}^n x_{i1} & \sum_{i=1}^n x_i \\ \sum_{i=1}^n x_i & \end{pmatrix}$$

$$(1-x)^{b-1} dx$$

A person wearing a white button-down shirt is standing in front of a chalkboard. The chalkboard has mathematical equations written on it, including $\sum t = \infty$, $y' + \sqrt{y}$, and $\text{ate}[?]$. The person's right hand is near their neck.

$$\frac{\sum_{i=1}^N \nabla x_i \cdot \nabla y_f}{\sqrt{\sum_{i=1}^N \nabla^2 x_i \cdot \sum_{i=1}^N \nabla^2 y_f}}.$$

$$\sqrt{\sum_{i=1}^N \nabla^2 x_i \cdot \sum_{i=1}^N \nabla^2 y_i}.$$

—
—

$$\varepsilon_{ex} = \frac{dQ_{ex}}{de} \cdot \frac{e}{Q_{ex}}; \quad \varepsilon_{im} = \frac{dQ_{im}}{de} \cdot \frac{e}{Q_{im}}.$$

$$v = r_{yx} * \frac{\sum y}{\sum x}, (4)$$

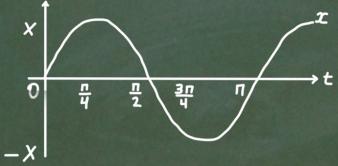
$$f_u = \frac{\sum r_{01}}{\sum q_1} + \frac{\sum r_{02}}{\sum q_2} \quad f(x) = \frac{1}{2} + \sum_{n=1}^{\infty} (a_n \cos nx + b_n \sin nx)$$

$$r_i = \frac{\sum_{t=2}^n (\bar{y}_t - \bar{y}_i) \cdot (\bar{y}_{t-1} - \bar{y}_2)}{\sqrt{\sum_{t=2}^n (\bar{y}_t - \bar{y}_i)^2 \cdot \sum_{t=2}^n (\bar{y}_{t-1} - \bar{y}_2)^2}} \quad \beta_{yx} = r_{yx} * \frac{\sum y}{\sum x}, (4)$$

$$\epsilon_{ex} = \frac{dQ_{ex}}{de} \cdot \frac{e}{Q_{ex}}, \quad \epsilon_{im} = \frac{dQ_{im}}{de} \cdot \frac{e}{Q_{im}}.$$

$$NE(e) = Q_{ex}(e) - eQ_{im}(e),$$

$$\Delta NE = \frac{dQ_{ex}}{de} \Delta e - e \frac{dQ_{im}}{de} \Delta e - eQ_{im}.$$



$$x_u = \frac{\sum p_0 q_1}{\sum q_1} + \frac{\sum p_0 q_2}{\sum q_2} \quad f(x) = \frac{a_0}{2} + \sum_{n=1}^{\infty} (a_n \cos nx + b_n \sin nx), (4)$$

$$r_i = \frac{\sum_{t=2}^n (\bar{y}_t - \bar{y}_i) \cdot (\bar{y}_{t-1} - \bar{y}_2)}{\sqrt{\sum_{t=2}^n (\bar{y}_t - \bar{y}_i)^2 \cdot \sum_{t=2}^n (\bar{y}_{t-1} - \bar{y}_2)^2}} \quad \beta_{yx} = r_{yx} * \frac{\sum y}{\sum x}, (4)$$

$$\tilde{G}^2(\epsilon) = \tilde{S}^2(\epsilon) = \frac{\sum_{t=2}^n y_t}{n-1}; \quad \bar{y}_1 = \frac{\sum_{t=2}^n y_t}{n-1}; \quad \bar{y}_2 = \frac{\sum_{t=2}^n y_{t-1}}{n-1};$$

$$\epsilon_{ex} = \frac{dQ_{ex}}{de} \cdot \frac{e}{Q_{ex}}, \quad \epsilon_{im} = \frac{dQ_{im}}{de} \cdot \frac{e}{Q_{im}}, \quad \int_{\frac{8}{105}}^{\frac{8}{105}} \int \int \sqrt{x+y} \, dx \, dy$$

$$NE(e) = Q_{ex}(e) - eQ_{im}(e),$$

$$\Delta NE = \frac{dQ_{ex}}{de} \Delta e - e \frac{dQ_{im}}{de} \Delta e - eQ_{im}, \quad (4)$$

$$B(a, b) = \int_0^1 (1-x)^{b-1} x^{a-1} \, dx =$$

$$\beta_{yx} = r_{yx} * \frac{\sum y}{\sum x}, (4)$$

$$NE(e) = Q_{ex}(e) - eQ_{im}(e),$$



$$B(a, b) = \frac{1}{a} \int_0^1 (1-x)^{b-1} x^{a-1} \, dx =$$

$$= \frac{1}{a} \left[\frac{(1-x)^{b-1}}{b-1} \right]_0^1 + \frac{b-1}{a} \int_0^1 x^{a-1} (1-x)^{b-2} \, dx =$$

$$= \frac{b-1}{a} B(a, b-1) - \frac{b-1}{a} B(a, b),$$

$$B(a, b) = \frac{b-1}{a+b-1} B(a, b-1).$$

$$\begin{aligned} & \sum_{i=1}^n x_{i1} \\ & \sum_{i=1}^n x_{i2} \\ & \sum_{i=1}^n x_{i1} x_{i2} \end{aligned} \quad ; \quad X^T Y = \begin{pmatrix} \sum_{i=1}^n x_{i1} \\ \sum_{i=1}^n x_{i1} y_i \\ \sum_{i=1}^n x_{i2} y_i \end{pmatrix}$$

$$\int \int \sqrt{x+y} \, dx \, dy$$

$$\text{Integrate}[1 / (x^4 + x^2 + 2), \{x, 0, \text{Infinity}\}]$$

$$\frac{8}{105} (x + \sqrt{y})^{5/2} (-2x + 5\sqrt{y})$$

$$\frac{1}{56} \left(7 + \sqrt{7(-5+4\sqrt{2})} \right) \pi$$

$$B(a, b) = \frac{1}{a} \int_0^1 (1-x)^{b-1} x^{a-1} \, dx =$$

$$= \frac{1}{a} \left[\frac{(1-x)^{b-1}}{b-1} \right]_0^1 + \frac{b-1}{a} \int_0^1 x^{a-1} (1-x)^{b-2} \, dx =$$

$$= \frac{b-1}{a} B(a, b-1) - \frac{b-1}{a} B(a, b),$$

$$B(a, b) = \frac{b-1}{a+b-1} B(a, b-1).$$

$$\widetilde{G}^2(\epsilon) = \widetilde{S}^2(\epsilon) =$$

$$*\frac{\sum y}{\sum x},$$

$$A \mid \mid \mid O \mid \mid \nabla y_f$$

$$\int \int \sqrt{x+y} \, dx \, dy$$

$$\text{Integrate}[1 / (x^4 + x^2 + 2),$$

$$\frac{8}{105} (x + \sqrt{y})^{5/2} (-2x + 5\sqrt{y})$$

$$(4)$$

$$x = r \frac{1}{56} \left(7 + \sqrt{7(-5+4\sqrt{2})} \right) \pi$$

$$x = f(x) = \frac{a_0}{2} + \sum_{n=1}^{\infty} (a_n \cos nx + b_n \sin nx)$$

$$(1-x)^{b-1} dx =$$

Beware of Demos!

- This is not a theoretical session.
- This is not a "sales" session.
- Instead, lots of examples will be presented how to make the best use out of Delphi with TMS tools!



All Infos, Source Code, ...

Holger's Guidebook

Welcome Scenario Session 1: TMS FlexCel ^ Creating the template Data module Preview Session 2: TMS FNC Maps Session 3: Multi-tier Web

Search Holger's Guidebook

Holger's Books Video Courses

Session 1: TMS FlexCel / Creating the template

Creating the template

The template will be completely created in Microsoft Excel.

NOTE

Obviously, you could generate the template document using FlexCel API as well. However, designing in Microsoft Excel is much easier.

P	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AA
1	<#YardSaleTitle>																																			
2	<#YardSaleEventDates>																																			
3																																				
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5																																				
6																																				
7																																				
8																																				
9																																				
10																																				
11	<#P.Name>										<#P.Address>																									
12	<#P.Categories>																																			
13																																				

- Information for the yard sale record is not linked to the dataset. Instead, two placeholders are



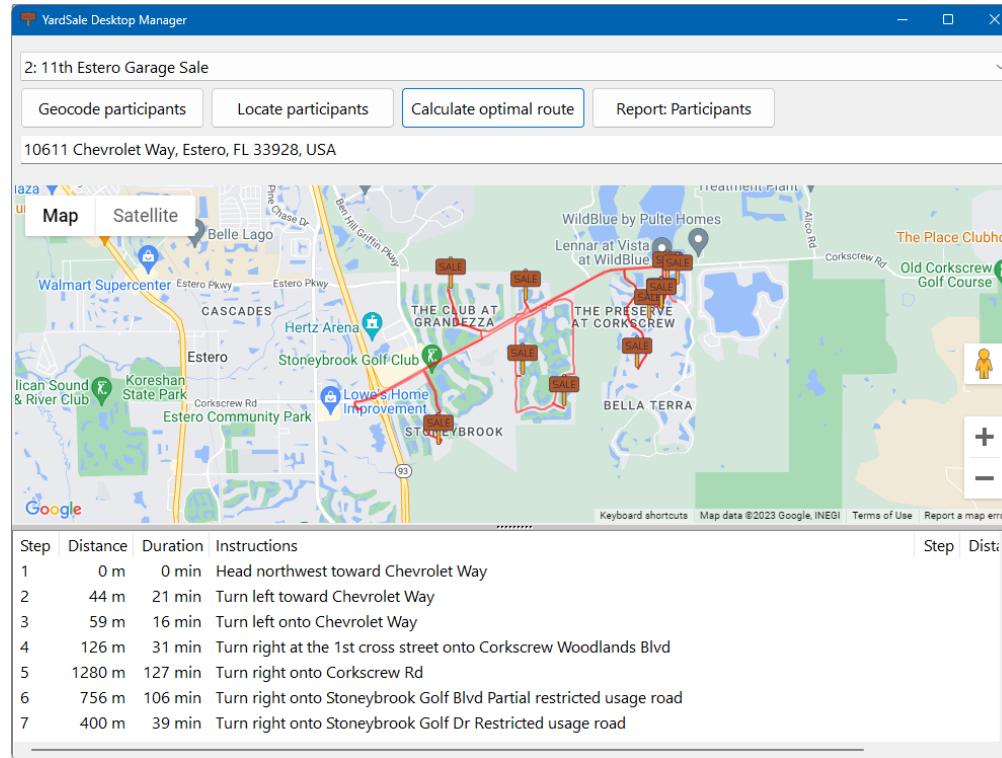
All Infos, Source Code, ...

- Follow me live

<https://tmsdays.flixengineering.freemyip.com/>



What you will learn



GARAGE
SALE



Scenario



Today 17:07

Hello Bella Terra Residents,

Garage Sale/ April 22 8-12pm

<https://m.signupgenius.com/#!/showSignUp/10c0f49afad2daaffc34-bella1> Reply 'STOP 66305' to opt out



Text Message



Scenario

Garage Sale
Saturday April 22, 2023
8:00 am – 12:00 pm

21432 Velino Ln20715	21579 Belvedere	21854 Bella Terra Blvd
Torre Del Lago Street	13649 Messino Court	20492 Ardore Ln
21831 Bella Terra Bkvd	21294 Bella Terra Blvd.	13856 Soriano Ct
21329 BTBld	2461 Ardore In	20516 Larino Loop
21779 Bella Terra Blvd	21031 Torre Del Lago St	13206 Lazzaro Ct
21181 Palese Drive	21007 Bosco ct, Estero	21420 Bella Terra Blvd
13854 Farnese Dr	Florida 33928	20569 Torre Del Lago st
20357 Torre Del Lago St	20505 Ardore Ln	Garage sale
21006 Torre Del Lago	21436 Bella Terra Blvd	20444 Ardore
20596 Torre Del Lago	21315 Bella Terra Blvd	21513 Belvedere Lane
21209 Bella Terra Blvd	21106 Palese Drive	(cul-de-sac)
20450 Ardore Ln.	13553 Messino	20268 torre del lago st
21628 Belvedere Lane	20753 Torre del lago	20965 Torre Del Lago St
13509 Loreo Ct	21741 bella terra blvd	20626 Torre Del Lago
20644 Torre Del Lago st	21421 Bella Terra	20085 Larino Loop
20335 Ardore Ln	Boulevard	21579 Belvedere
13862 SORANO Court	20436 Larino Loop	13649 Messino Court
20081 Serre Dr. Estero, FL	21301 Velino Lane	21294 Bella Terra Blvd.
33928	13892 Cleto dr. Estero fl	2461 Ardore In
13566 Messino Ct	13549 Troia Drive	21031 Torre Del Lago St
21445 Bella Terra Blvd	20201 Larino Loop	21007 Bosco ct, Estero
21090 Cosenza Ct	21083 Bosco Ct.	Florida 33928
21513 Belvedere Ln (cul-de-sac)	20430 Larino Loop	20505 Ardore Ln
20101 Larino Loop dr	21082 Bosco Ct	21436 Bella Terra Blvd
21420 Bella Terra Blvd	21052 Bosco Ct	21315 Bella Terra Blvd
20569 Torre Del Lago st	20452 torre del lago	21106 Palese Drive
Garage sale	street	13553 Messino
20444 Ardore	20304 Larino Loop	20753 Torre del lago
21513 Belvedere lane (cul-de-sac)	13258 Boccalia	21741 bella terra blvd
20268 torre del lago st	13896 Cleto	21421 Bella Terra Blvd
20965 Torre Del Lago St	20449 Ardore Lane	
20626 Torre Del Lago	13610 Lucera Ct.	
20085 Larino Loop	21736 Bella Terra Blvd	
	21736 Bella Terra Blvd	
	20328 Larino Loop	



Scenario

- FNC Maps:
 - Locate all participants on a map (geocoding)
 - Add custom markers to the map
 - Create an optimal route to visit all participants
 - Create turn-by-turn instructions



Scenario

- FlexCel:
 - Use FireDAC to access a MySQL database
 - Create a report of all participants with FlexCel
 - Provide the report as part of a web service
 - Locate and mark all participants on a map with custom icons
- TMS WEB Core and XData:
 - Create a web application that people can use to sign up
 - Create a web service backend to store and retrieve information for the sign up page
 - Responsive web design using Bootstrap



