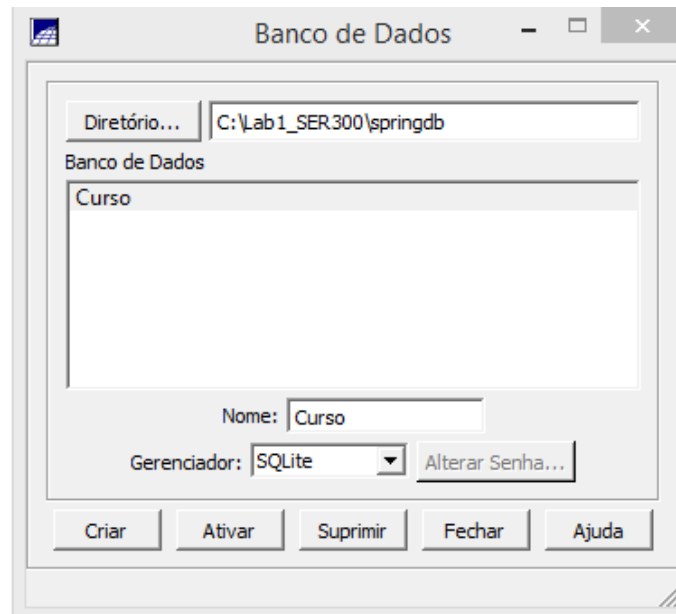


Relatório LAB1 – França D. G. M.

Matrícula: 130397

Exercício 1

Passo 1 – Criar o Banco de Dados:



Passo 2 – Criar o Projeto:

Projetos

DF

Nome: DF

Projeção... UTM/Datum->SAD69

Projeção de Referência

Projeção

Retângulo Envolvente

Coordenadas: GMS GD Planas

X1: 146465.9696 X2: 254090.8586

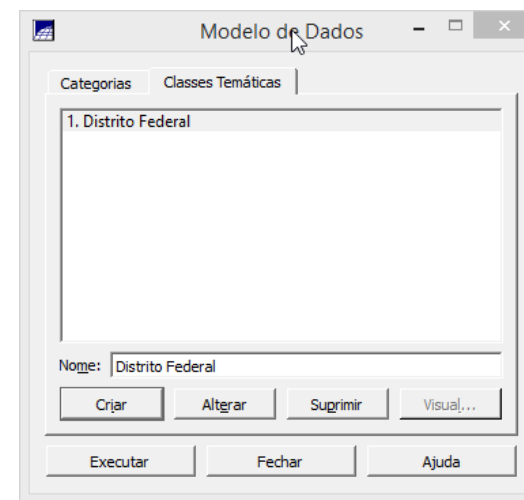
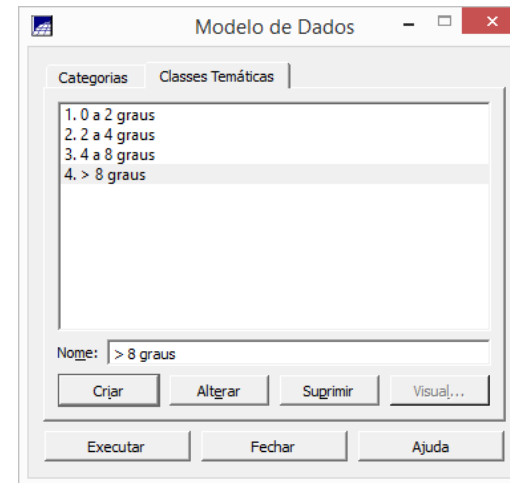
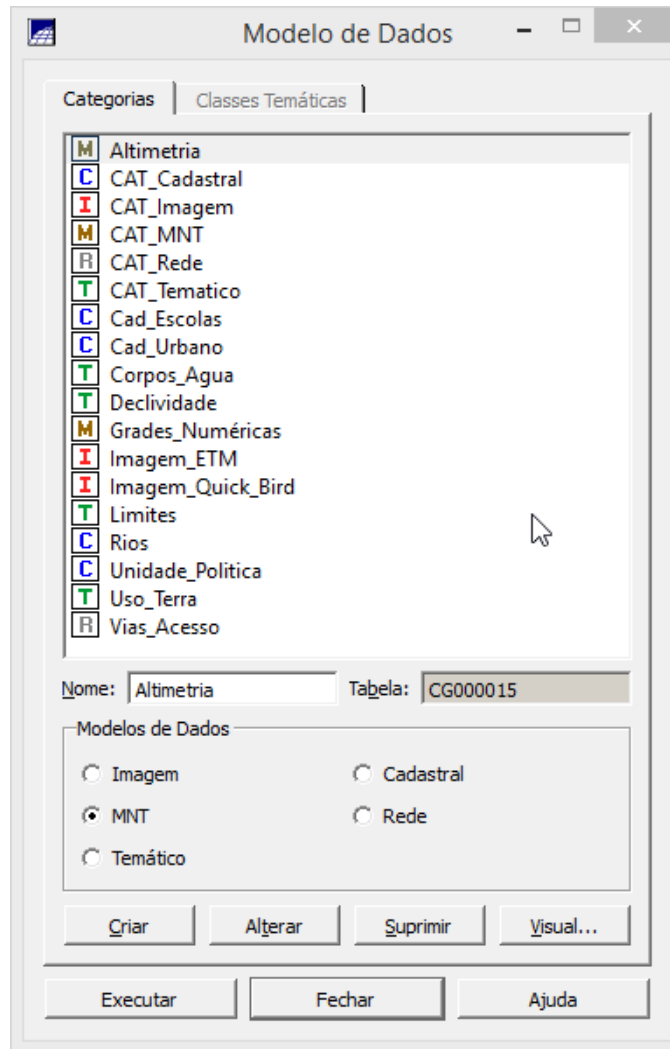
Y1: 8221030.8834 Y2: 8286579.5752

Hemisfério: N S N S

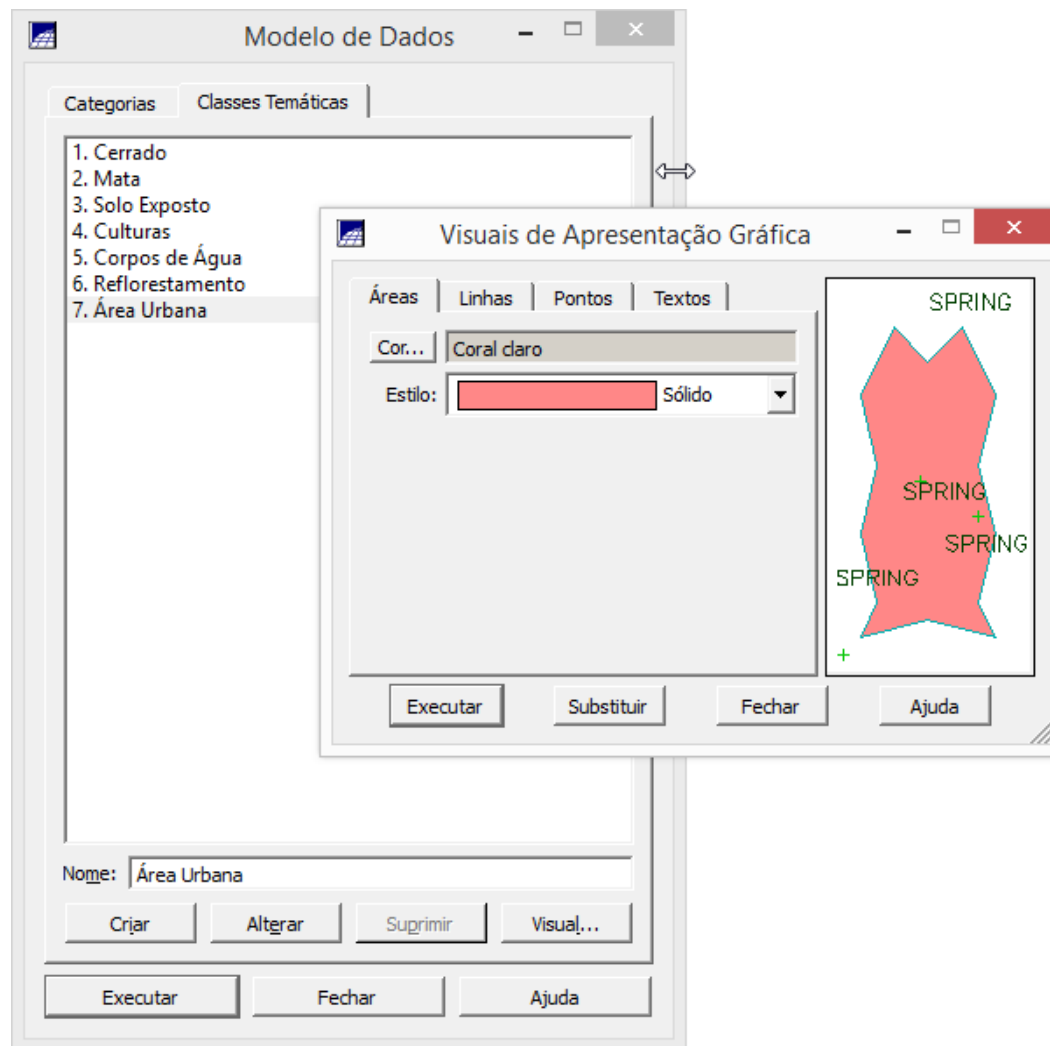
Criar Ativar Desativar Alterar Suprimir

Fechar Ajuda

Passo 2 – Criar categorias e classes:

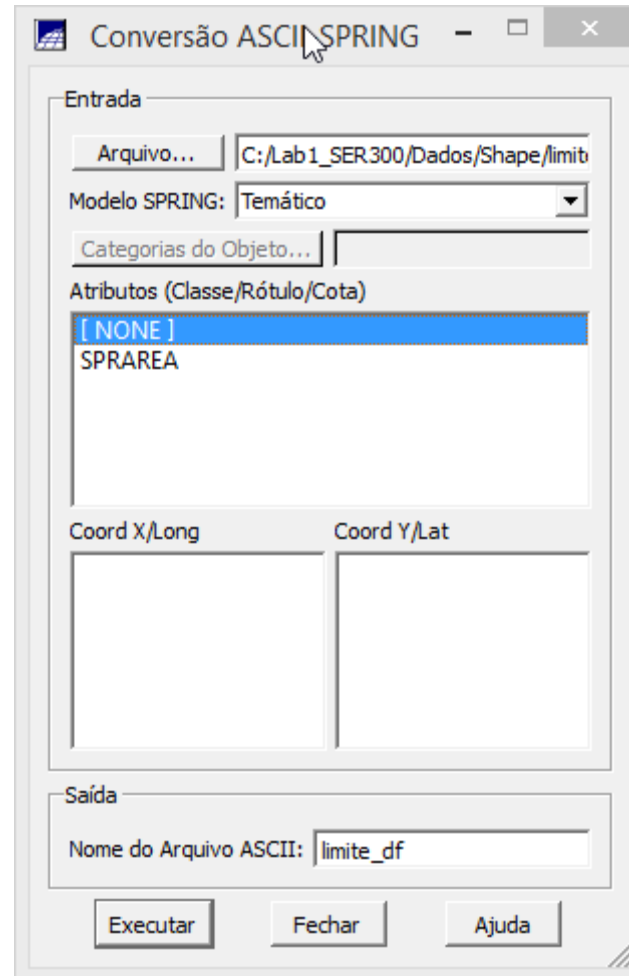


Passo 2 – Alterar o visual das classes temáticas:



Exercício 2 – Importando Limite do Distrito Federal

Passo 1 – Converter o arquivo Shape para ASCII-SPRING



Passo 2 – Importar os Arquivos ASCII

The 'Importação' dialog box is shown with the 'Dados' tab selected. The 'Arquivo...' field contains the path 'C:/Lab 1_SER300/Dados/Shape/limite_df_1'. The 'Entidade:' dropdown is set to 'Linha sem ajuste'. The 'Unid.:' dropdown is set to 'm'. The 'Escala:' field is '1/ 20000'. Below these fields, there is a text instruction: 'Selecione abaixo a correta Projeção/Datum do arquivo de importação para que o Spring possa converter automaticamente os dados e ajustá-los ao projeto ativo.' The 'Projeção...' field is set to 'UTM/Datum->SAD69'. A 'Retângulo Envolvente...' button is located below the projection field. At the bottom, there are 'Executar', 'Fechar', and 'Ajuda' buttons.

Importação

Dados | Conversão | Saída

Arquivo... C:/Lab 1_SER300/Dados/Shape/limite_df_1

Entidade: Linha sem ajuste

Unid.: m

Escala: 1/ 20000

Selecione abaixo a correta Projeção/Datum do arquivo de importação para que o Spring possa converter automaticamente os dados e ajustá-los ao projeto ativo.

Projeção... UTM/Datum->SAD69

Retângulo Envolvente...

Executar Fechar Ajuda

The 'Importação' dialog box is shown with the 'Conversão' tab selected. The 'Projeto:' field is 'DF'. The 'Categoria...' field is 'Limites'. The 'Objeto...' field is empty. The 'PI:' field is 'Limite_DF' and the 'Mosaico' checkbox is unchecked. At the bottom, there are 'Executar', 'Fechar', and 'Ajuda' buttons.

Importação

Dados | Conversão | Saída

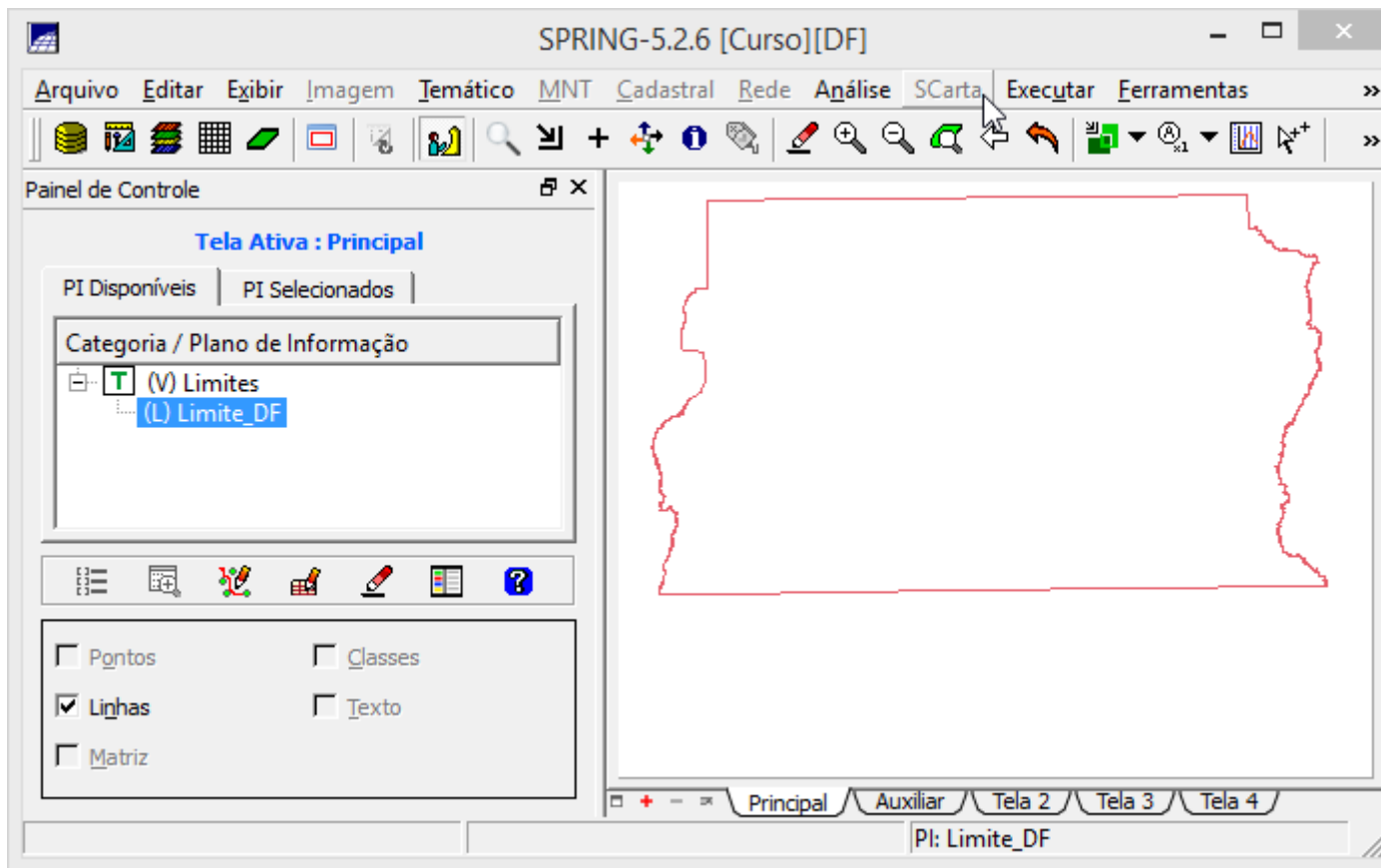
Projeto: DF

Categoria... Limites

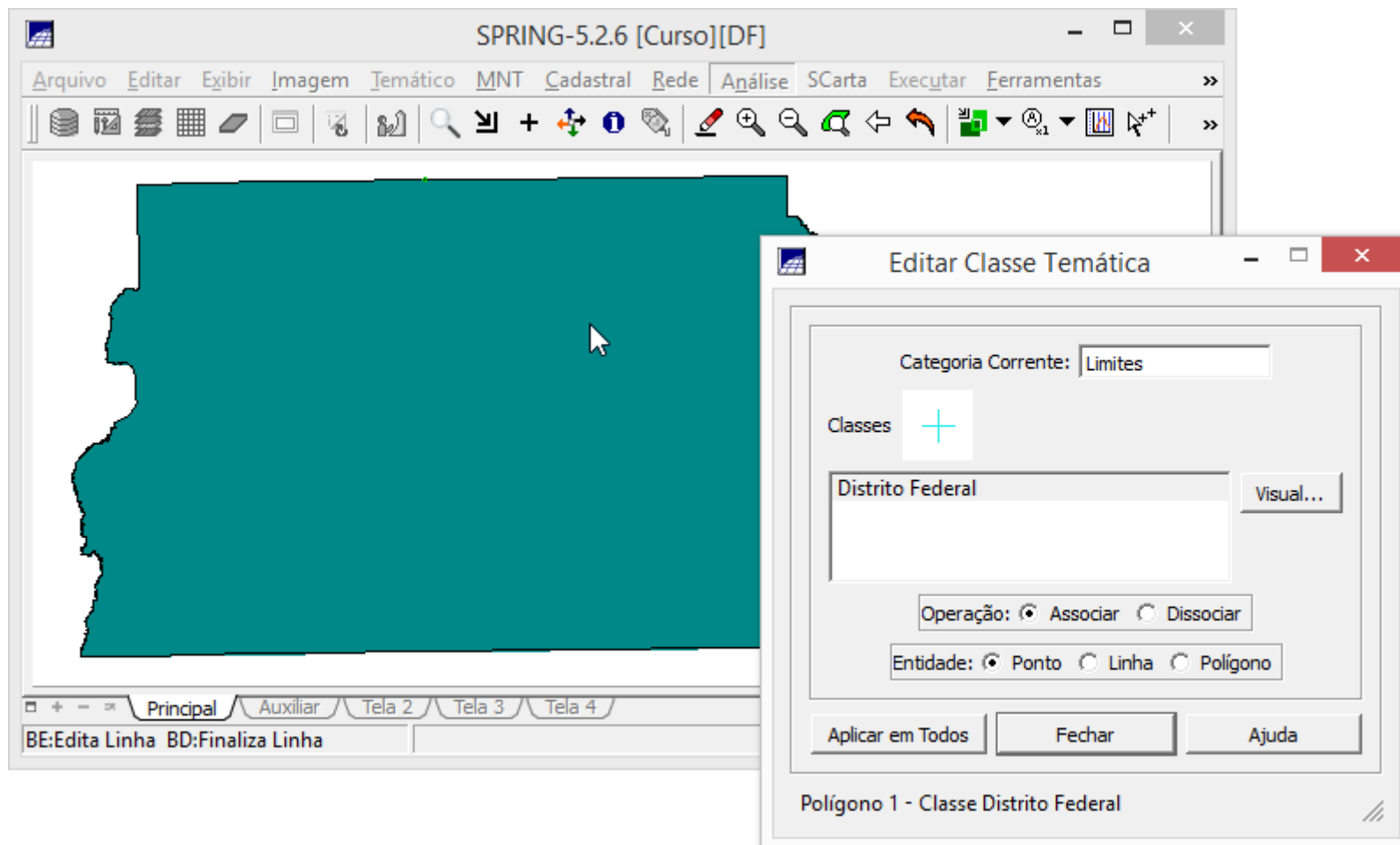
Objeto...

PI: Limite_DF Mosaico

Executar Fechar Ajuda

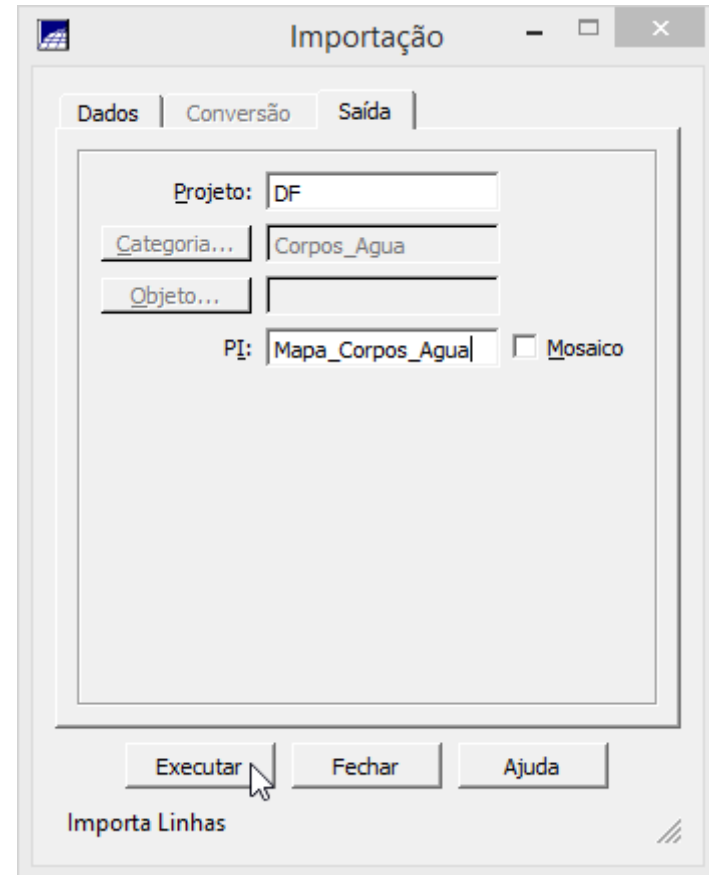
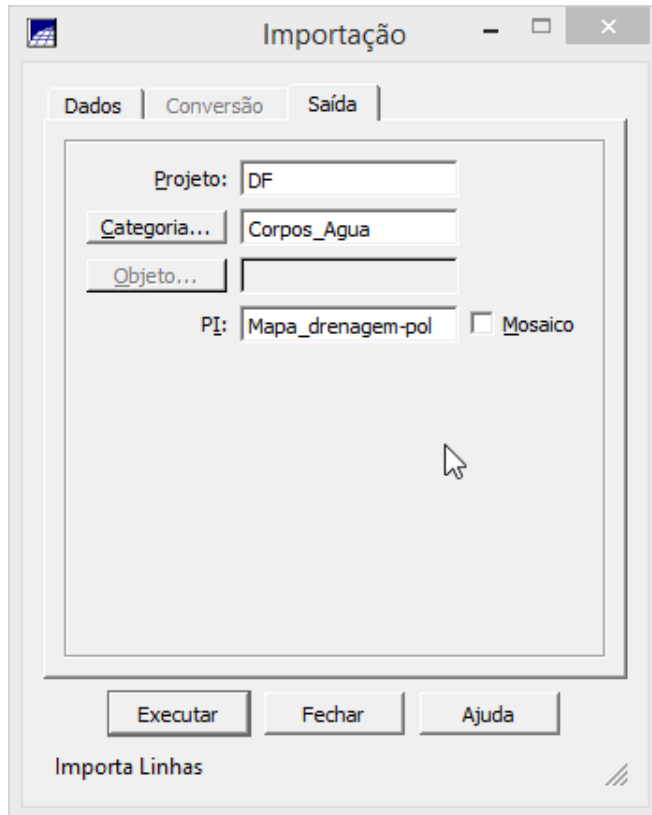


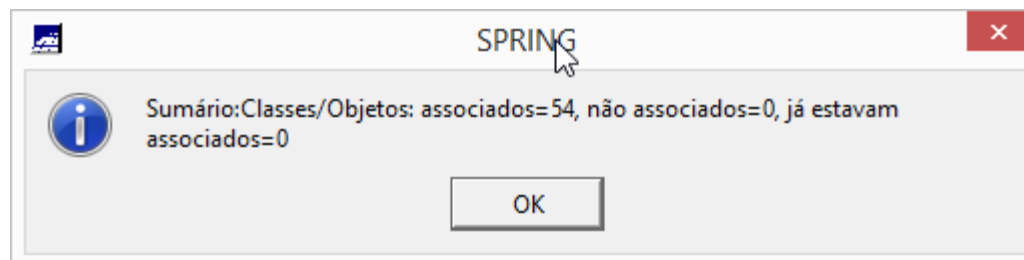
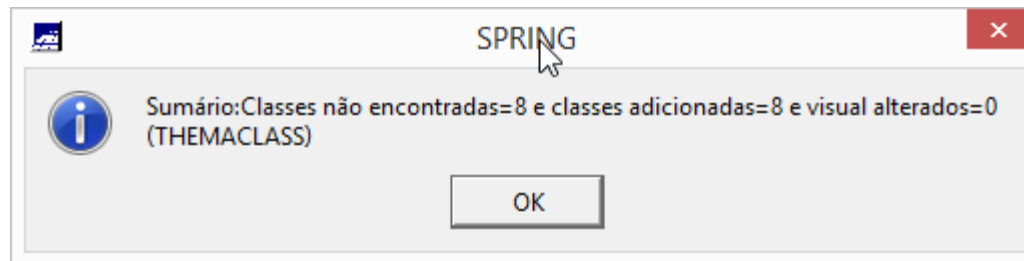
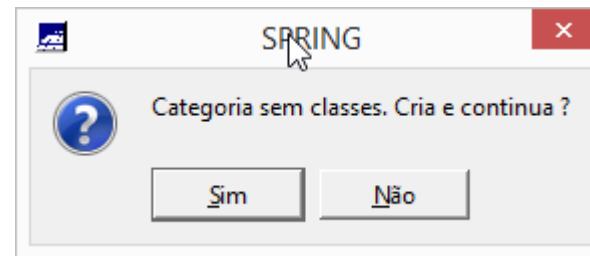
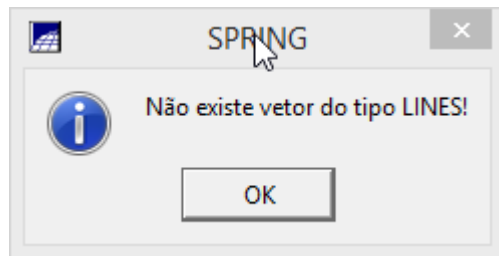
Passo 3 – Ajustar, Poligonalizar e Associar a classe temática:

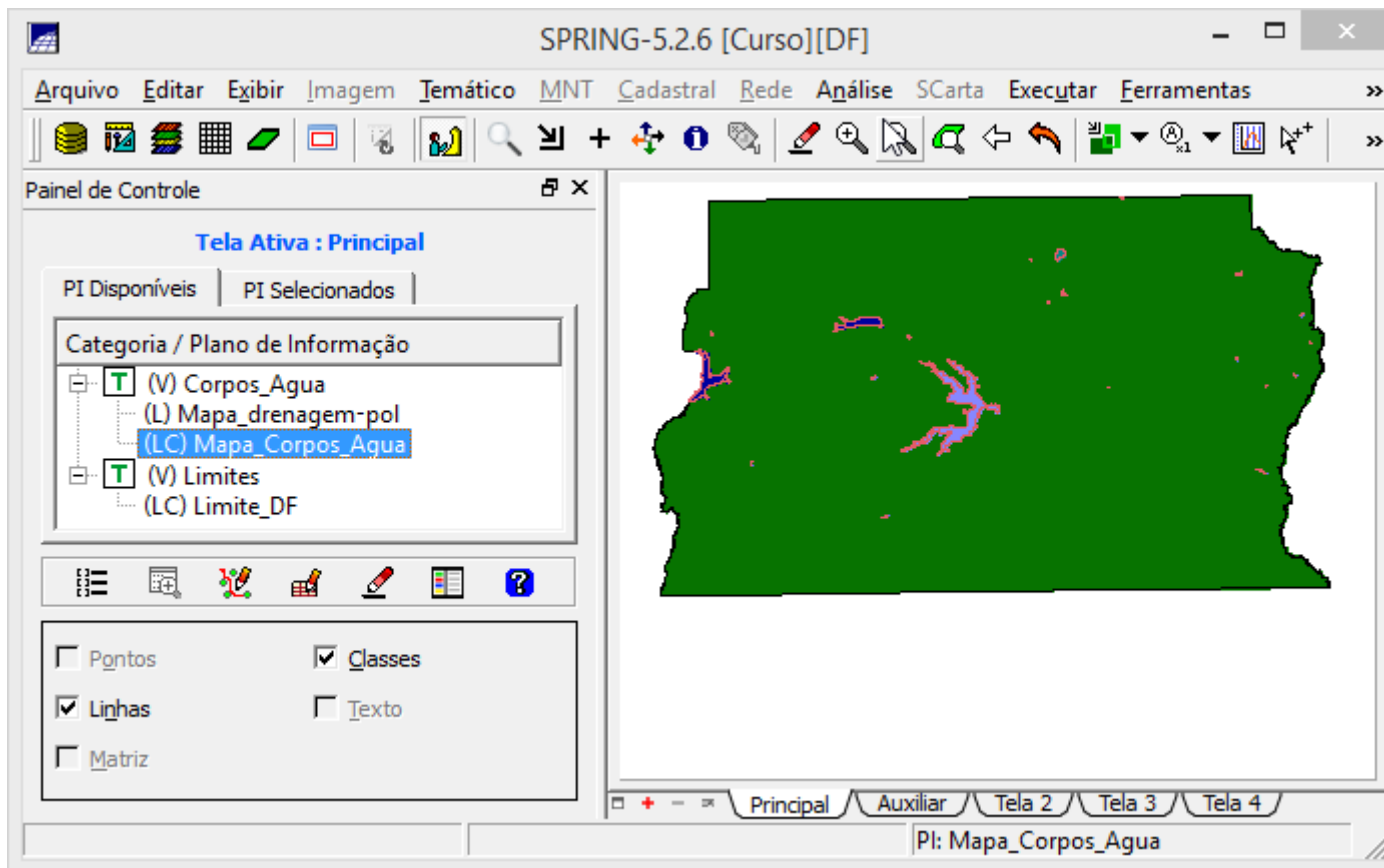


Exercício 3 – Importando Corpos de Água

Importando linhas de polígonos do mapa de drenagem:

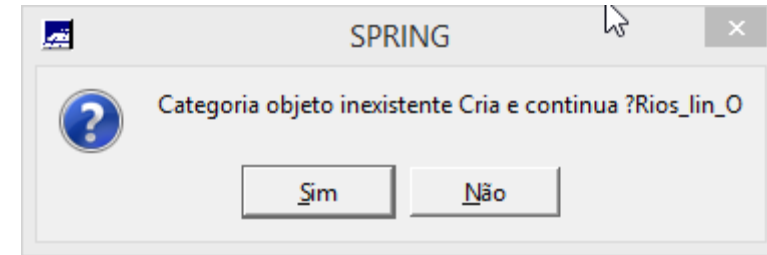
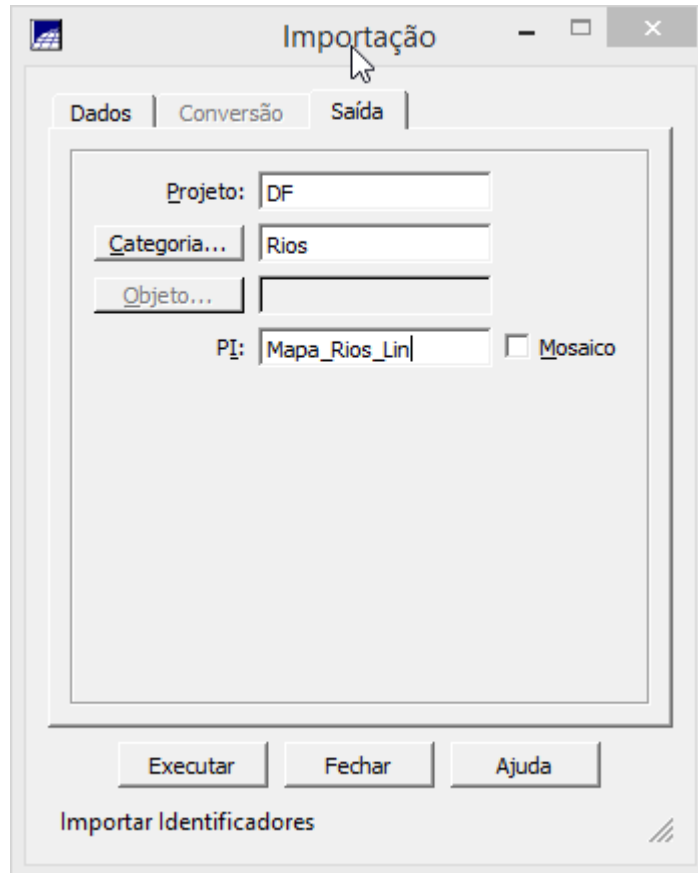


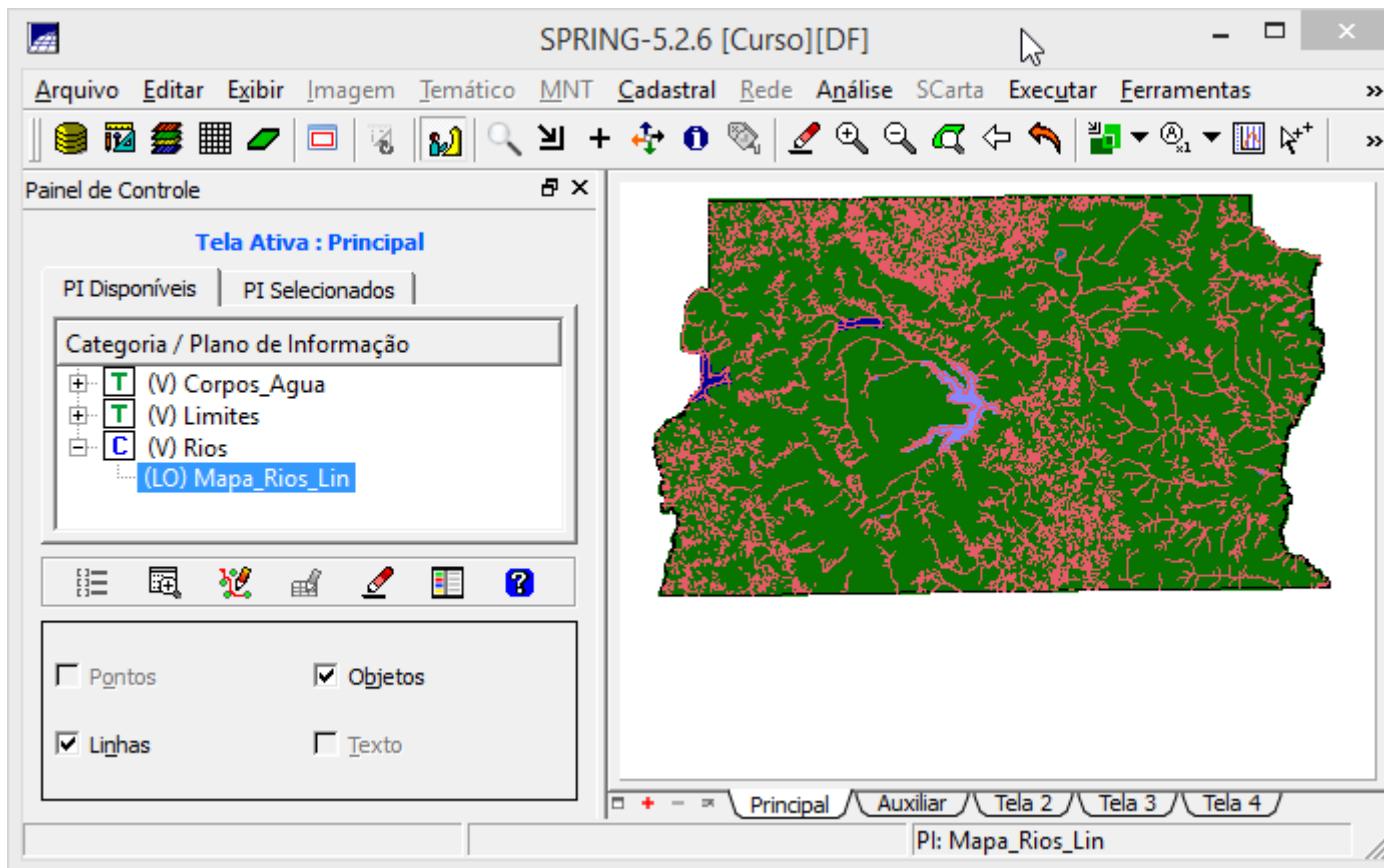


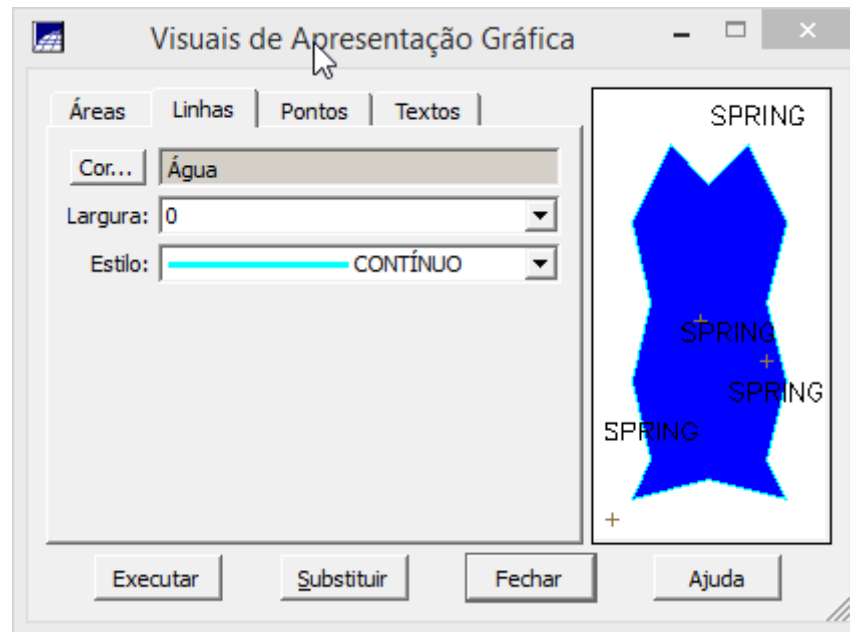


Exercício 4 – Importando Rios de arquivo Shape

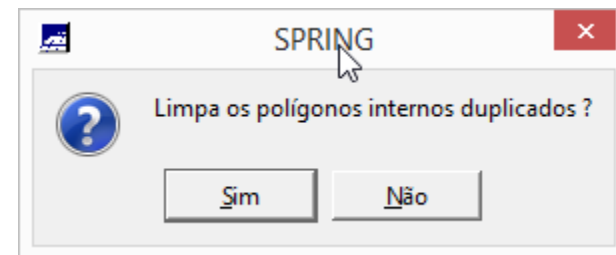
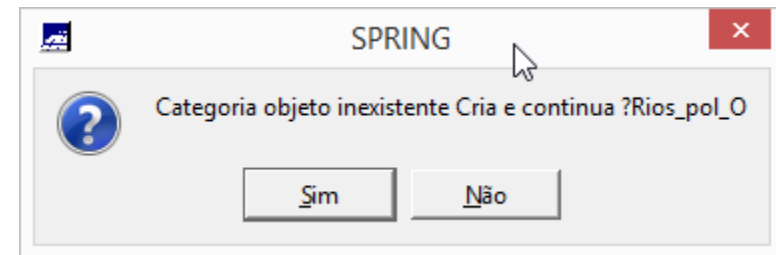
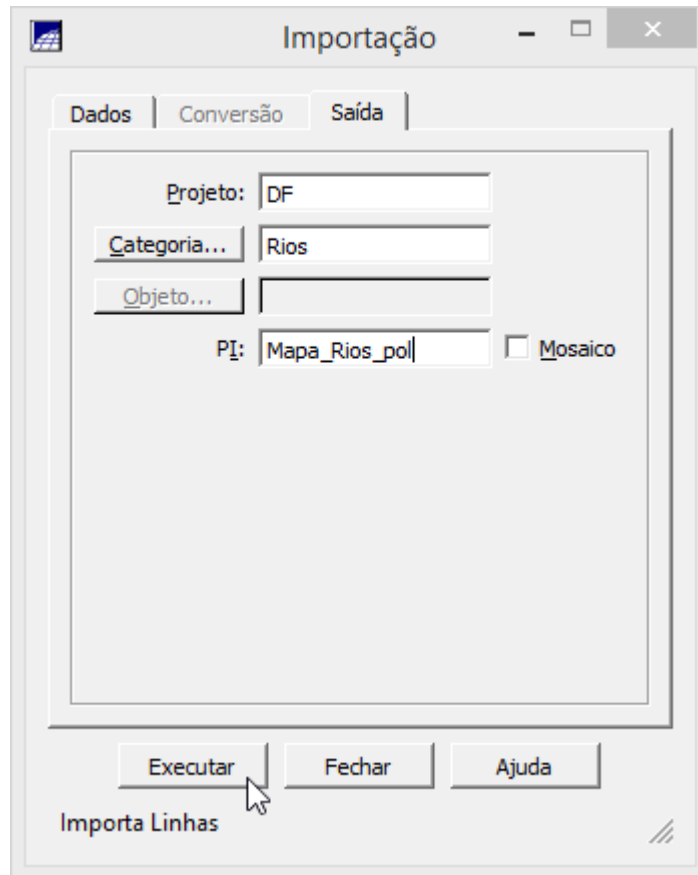
Executando a importação Shape para PI – Linhas de Rios:



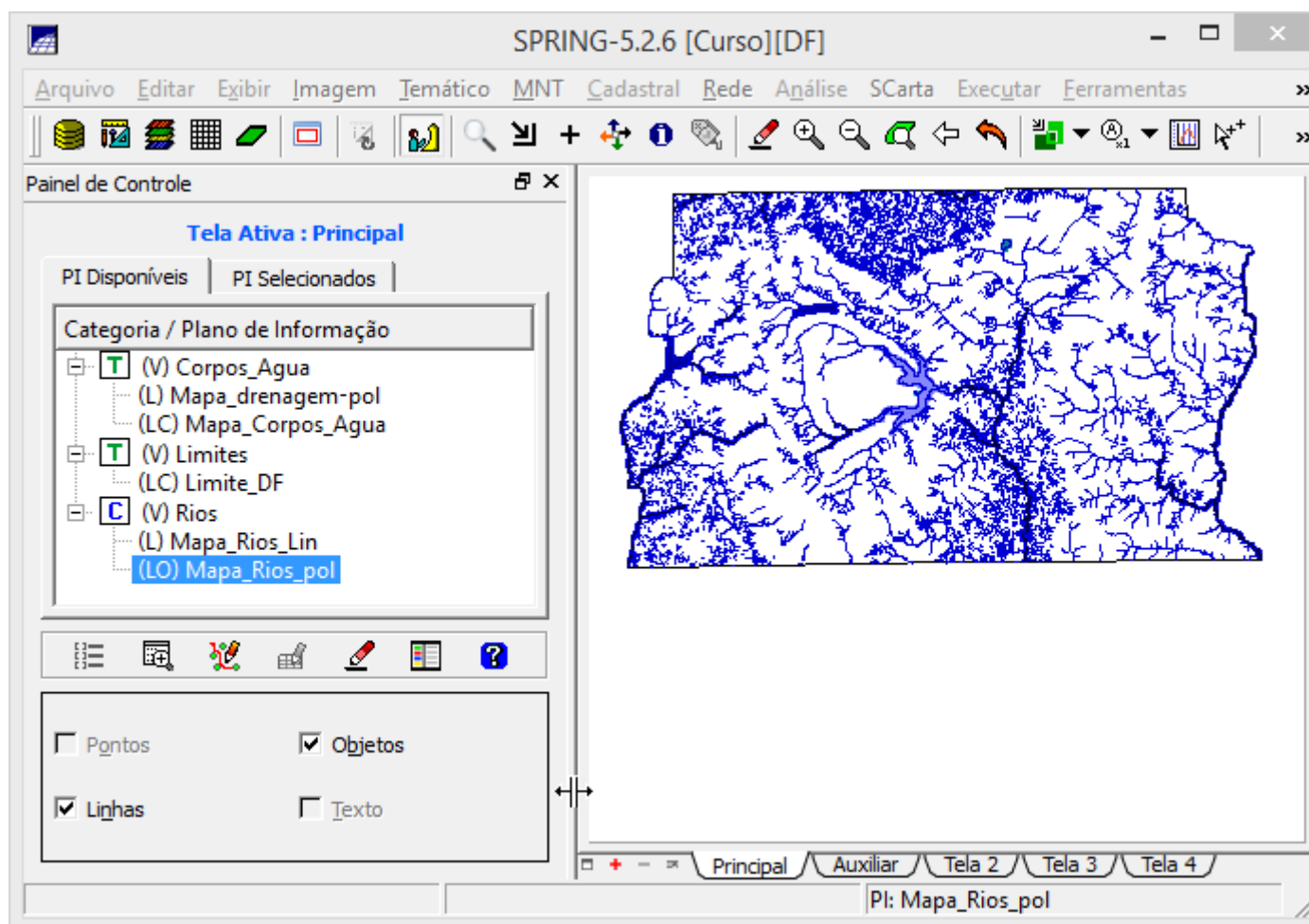




Executando a importação Shape para PI – Polígonos de Rios:

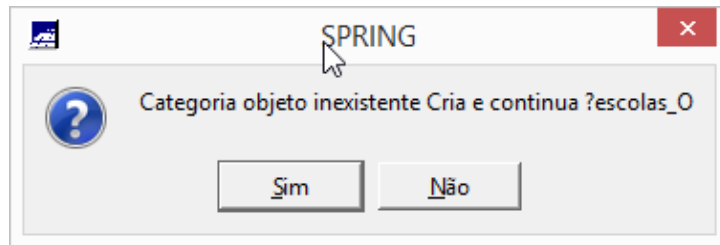
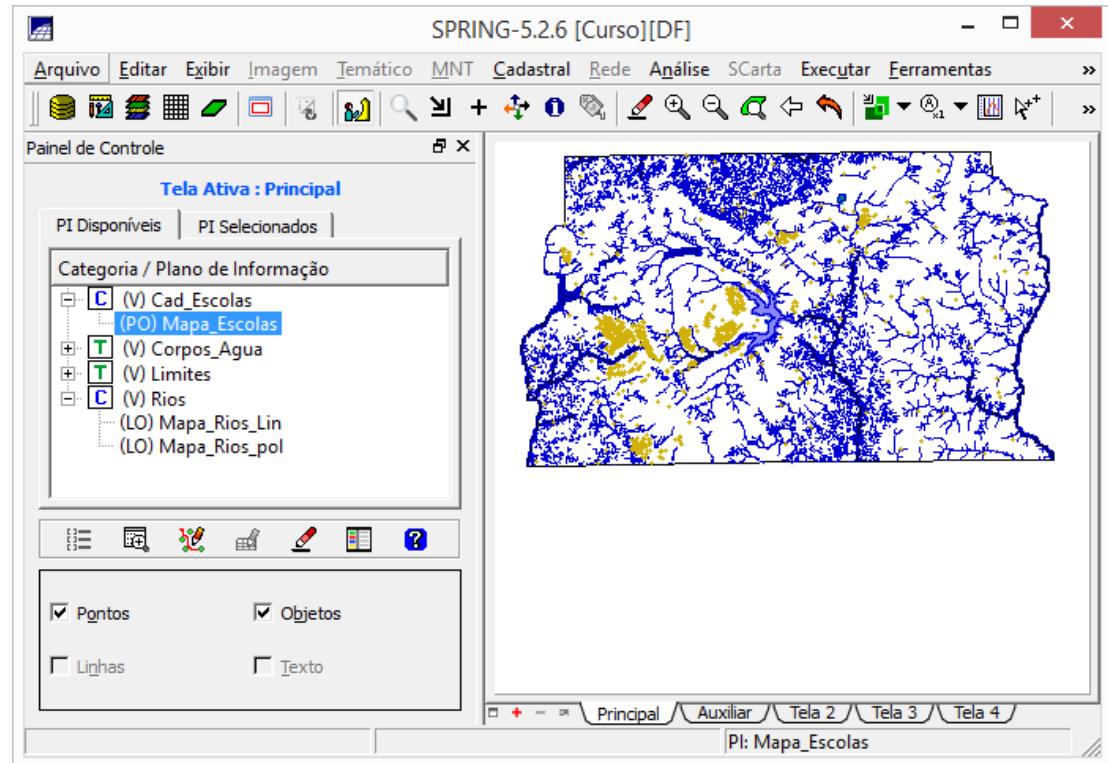
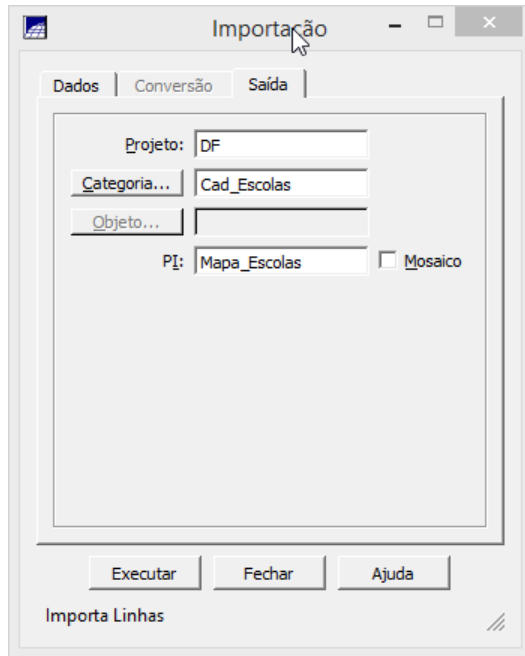


Fazendo uso da dica de alteração de visual para linhas de contorno dos polígonos:



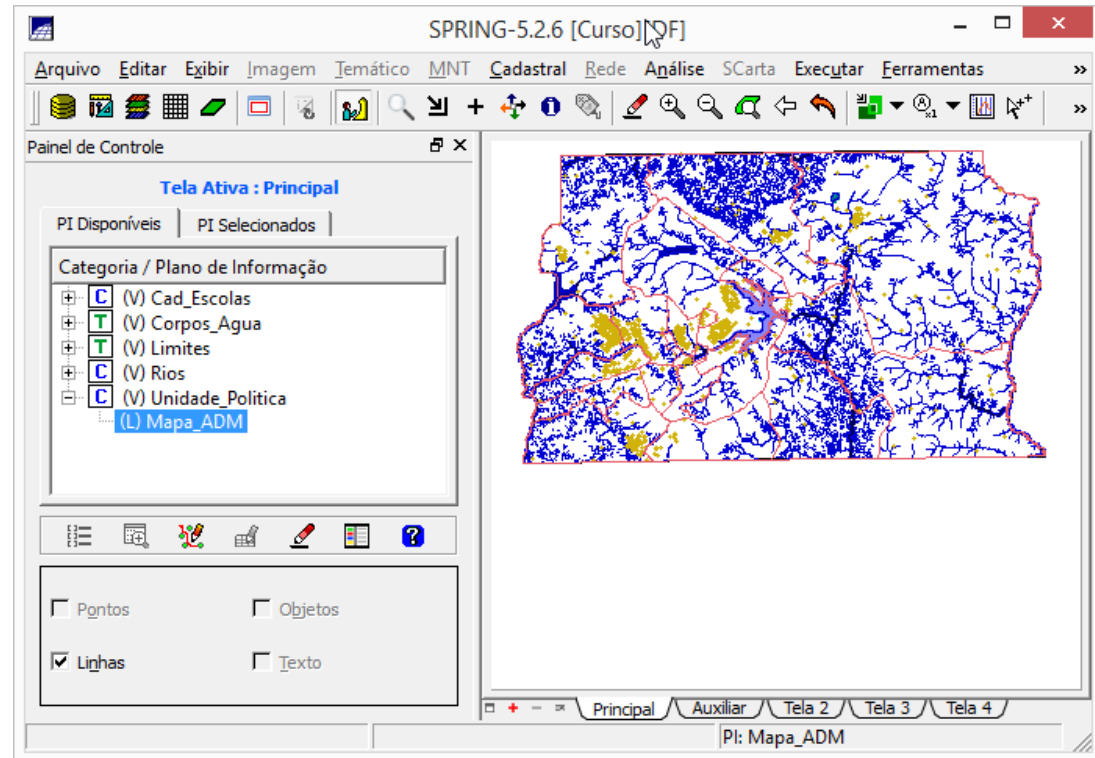
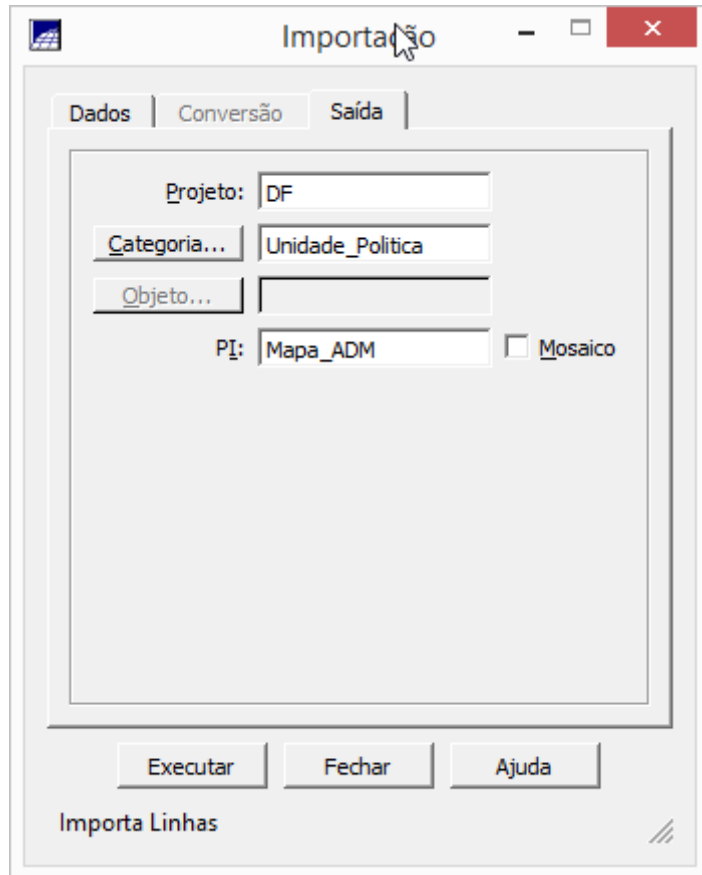
Exercício 5 – Importando Escolas de Arquivo Shape

Executando a importação Shape para PI:

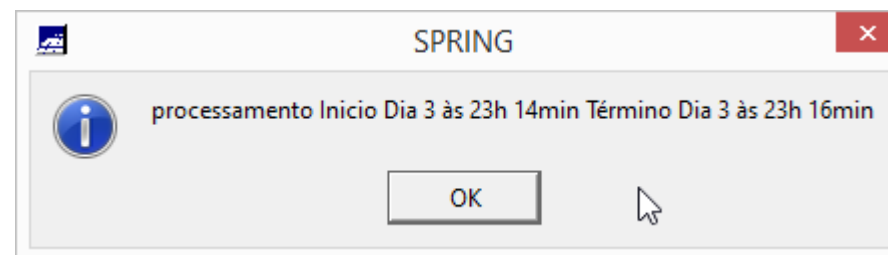
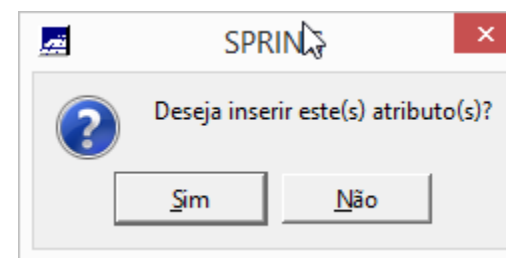
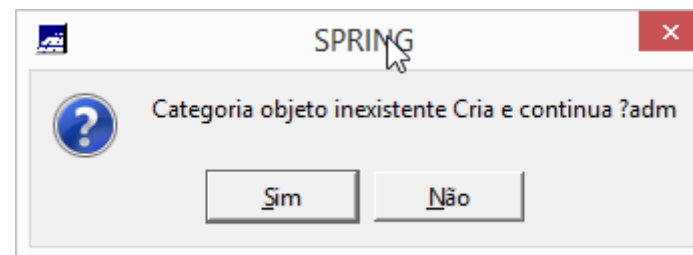
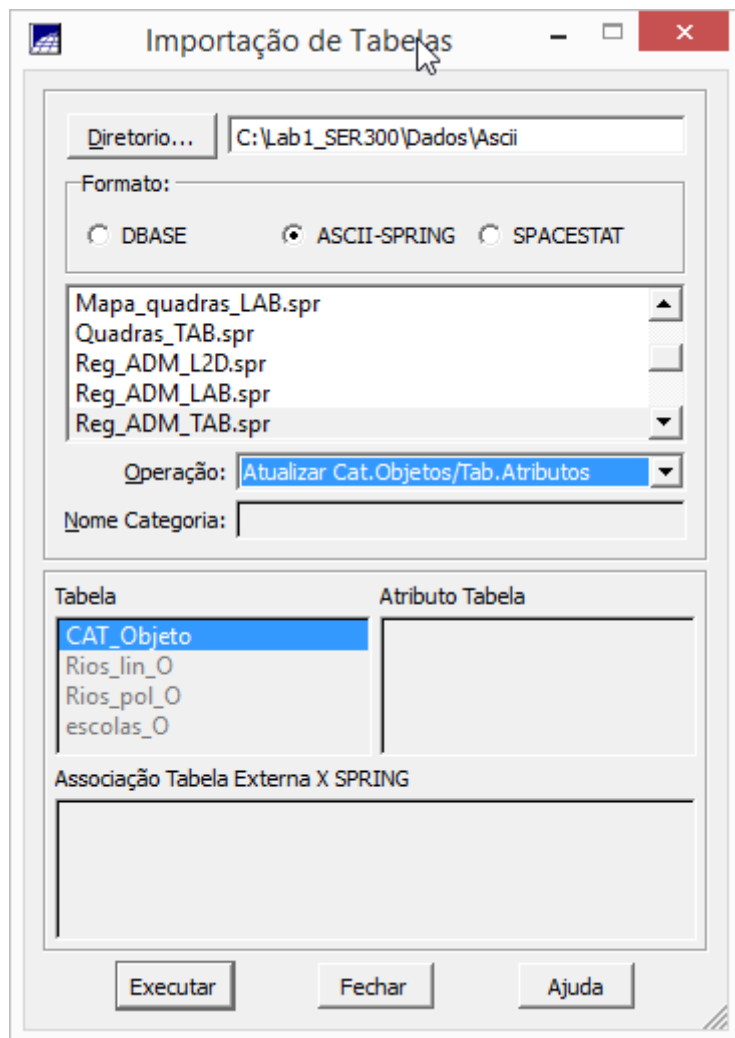


Exercício 6 – Importando Regiões Administrativas de arquivos ASCII-SPRING

Importando linhas para PI cadastral de unidades políticas:

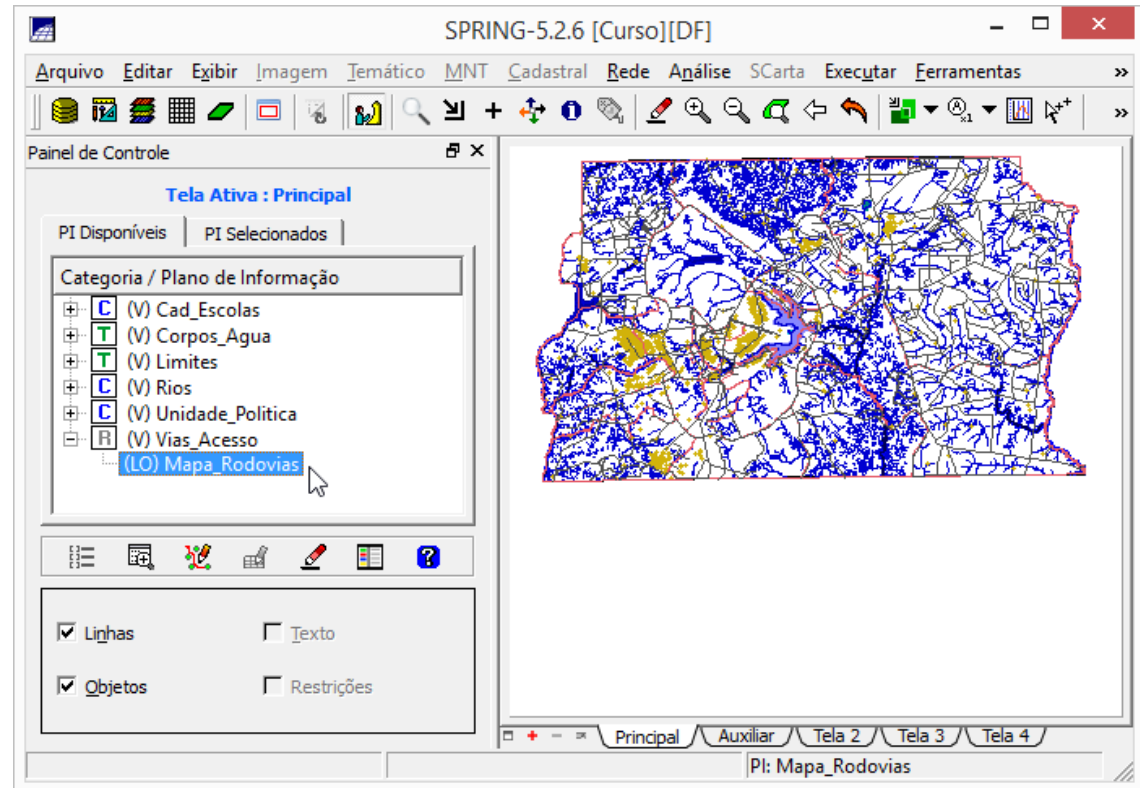
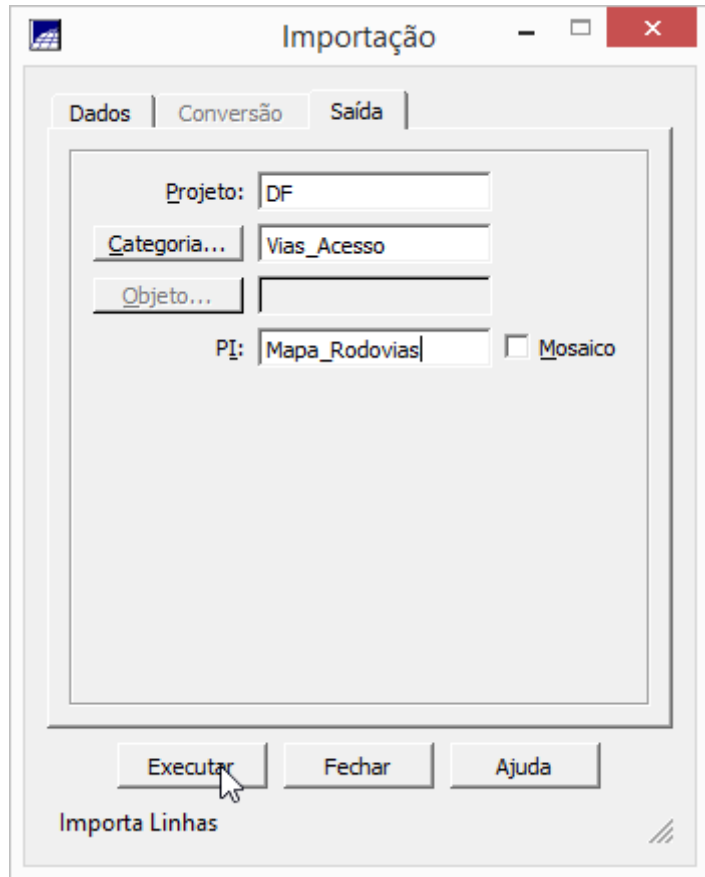


Importando identificadores dos polígonos:

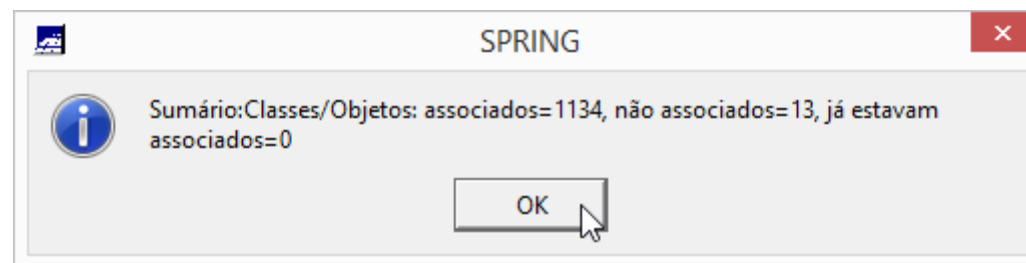
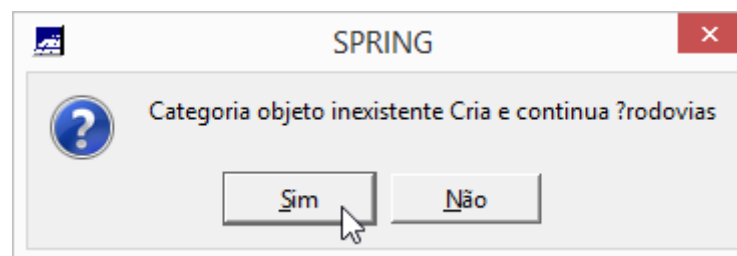
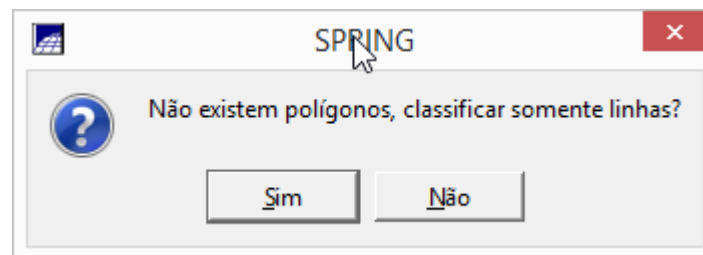
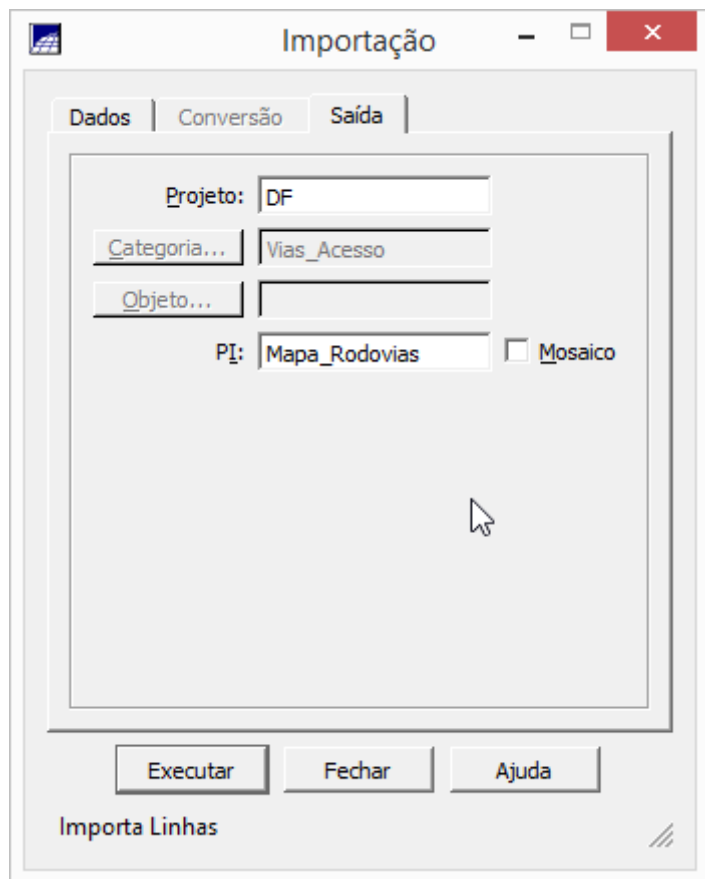


Exercício 7 – Importando Rodovias de arquivos ASCII-SPRING

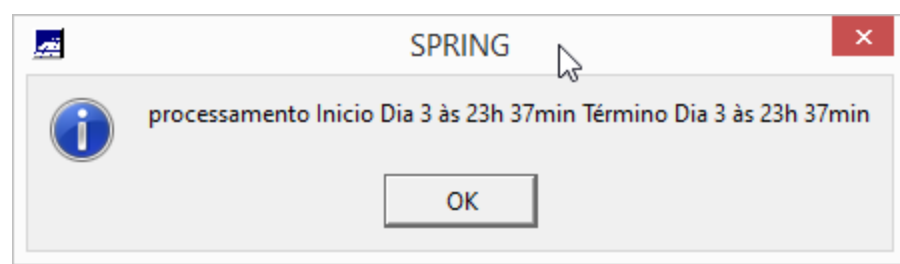
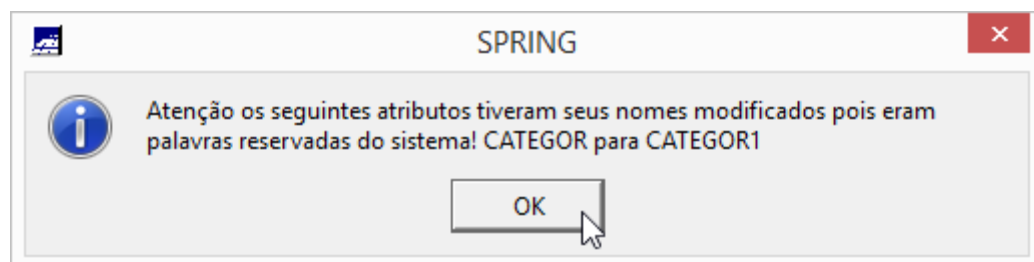
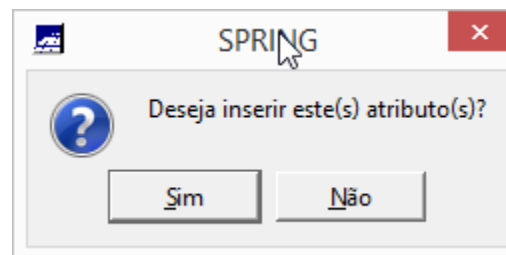
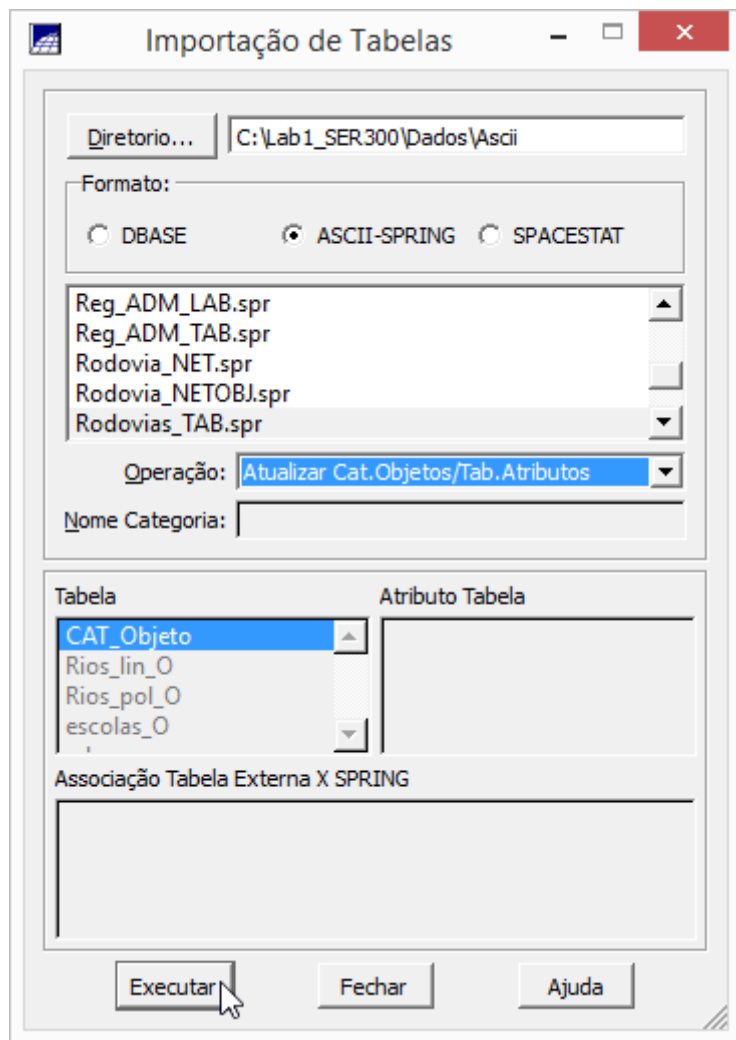
Importando as LINHAS do mapa de rodovias:

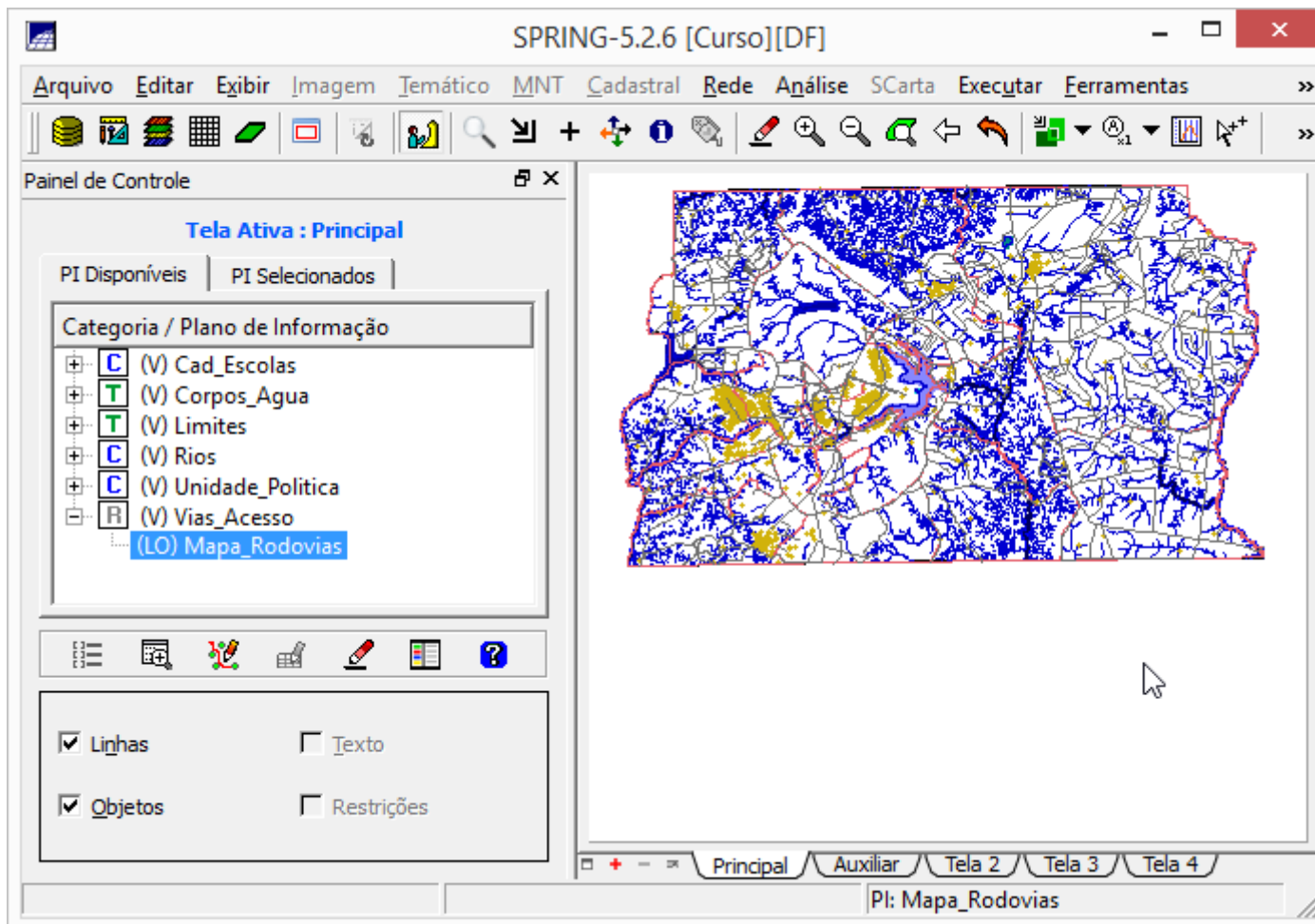


Importando os IDENTIFICADORES das rodovias:

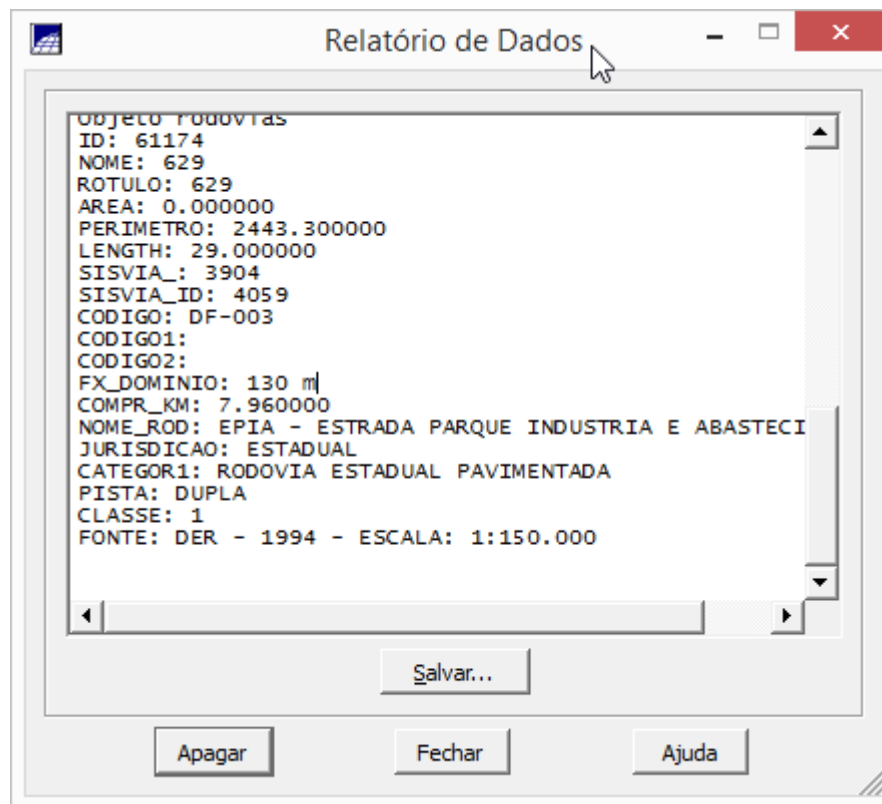


Importando os atributos para a tabela de objetos rodovias:





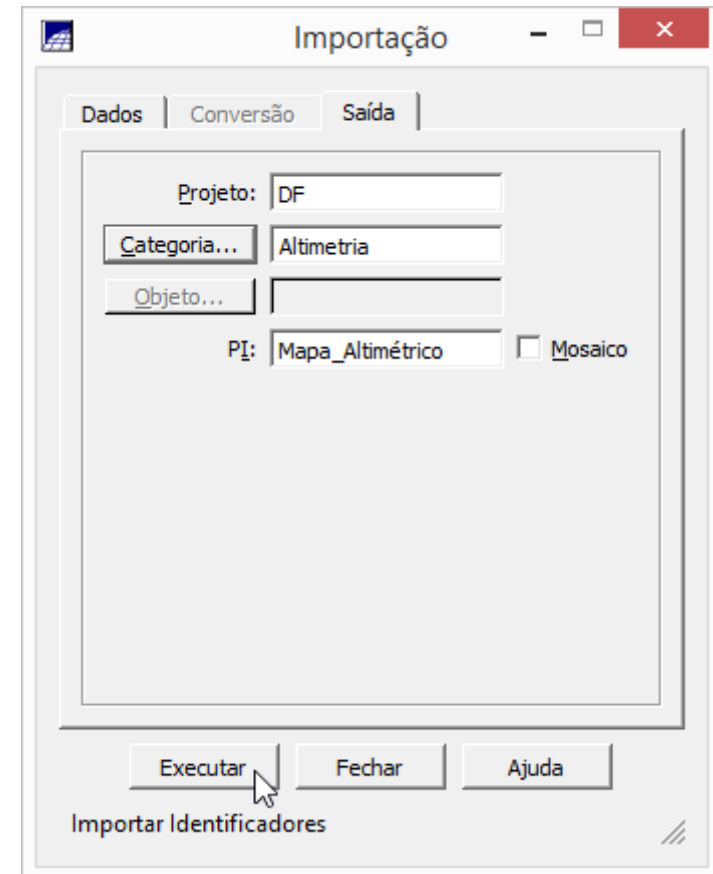
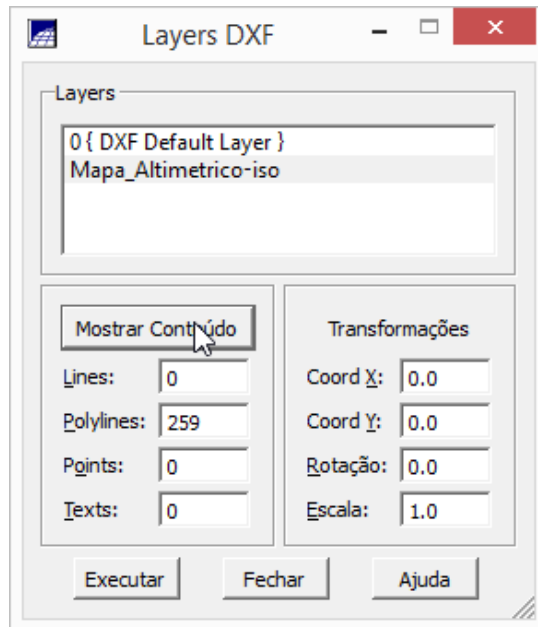
Visualizando os atributos dos PI's criados acima:



Exercício 8 - Importando Altimetria de Arquivos DXF

Passo 1 – Importar arquivo DXF com isolinhas num PI numérico

Importando isolinhas de arquivo DXF:

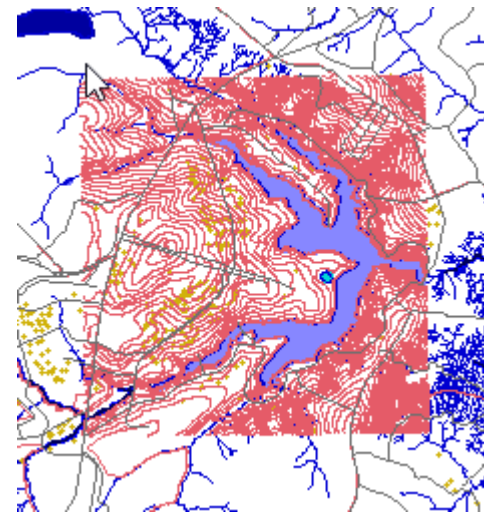


Tela Ativa : Principal

PI Disponíveis | PI Selecionados

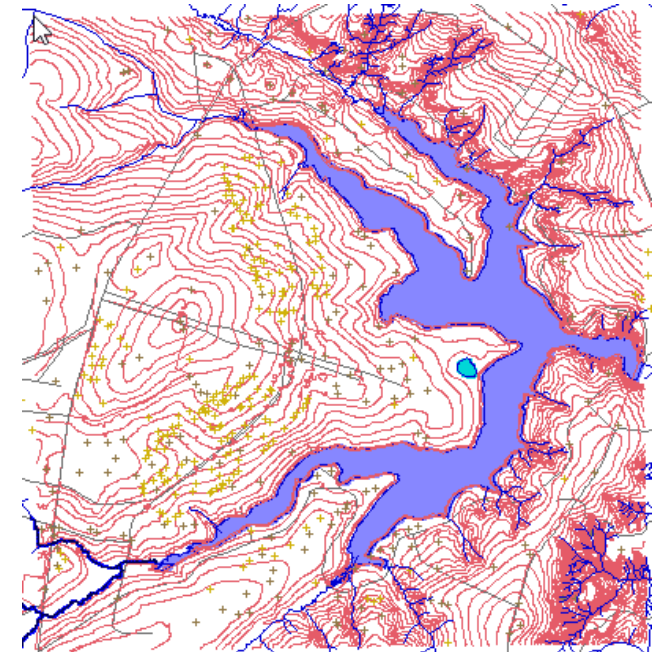
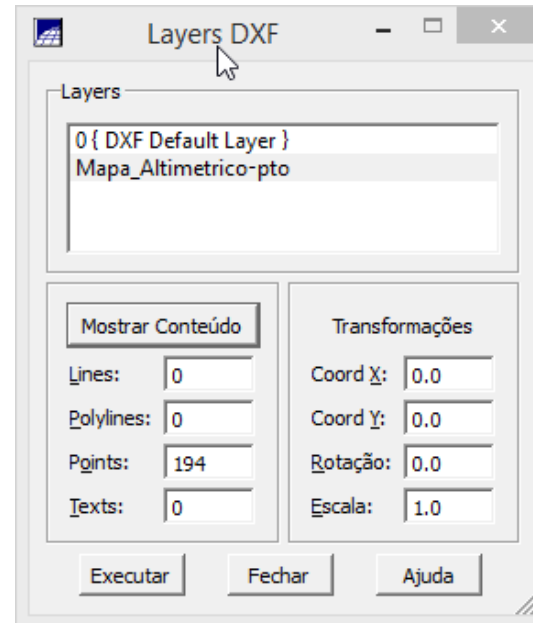
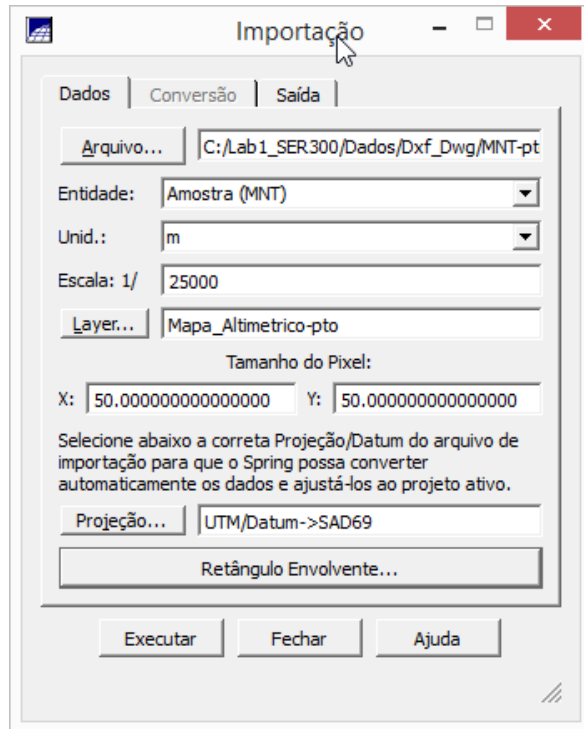
Categoria / Plano de Informação

- M** (V) Altimetria
 - (A) Mapa_Altimétrico
- C** (V) Cad_Escolas
- T** (V) Corpos_Agua
- T** (V) Limites
- C** (V) Rios
- C** (V) Unidade_Politica
- R** (V) Vias_Acesso



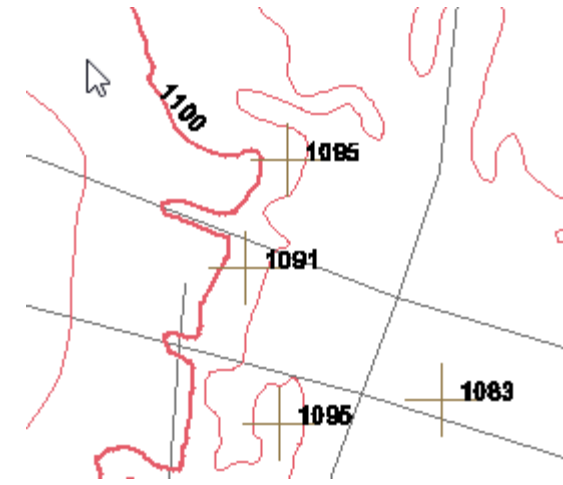
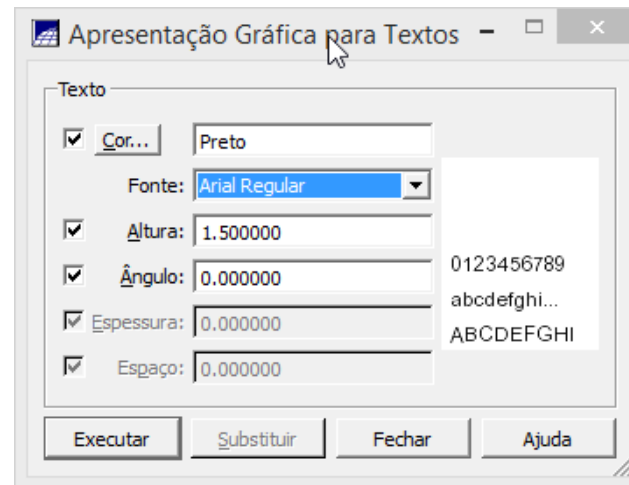
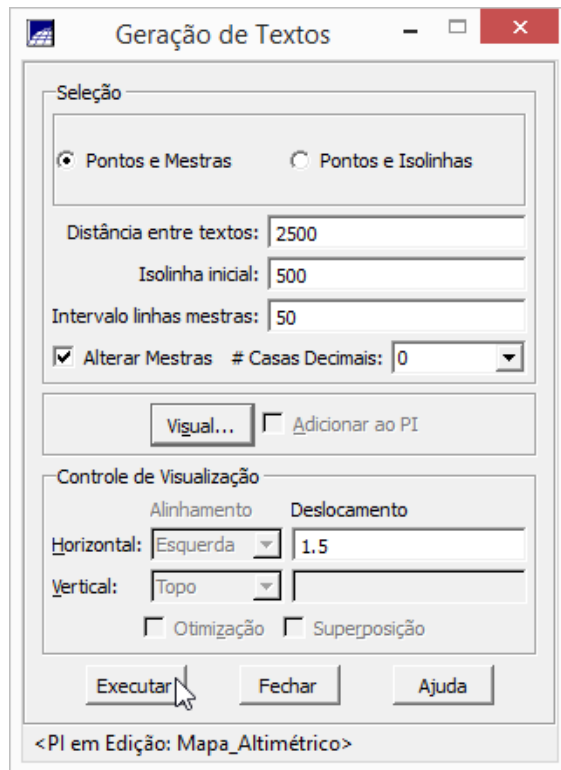
Passo 2 – Importar arquivo DXF com pontos cotados no mesmo PI das isolinhas

Importando pontos cotados de arquivo DXF:



Passo 3 – Gerar toponímia para amostras

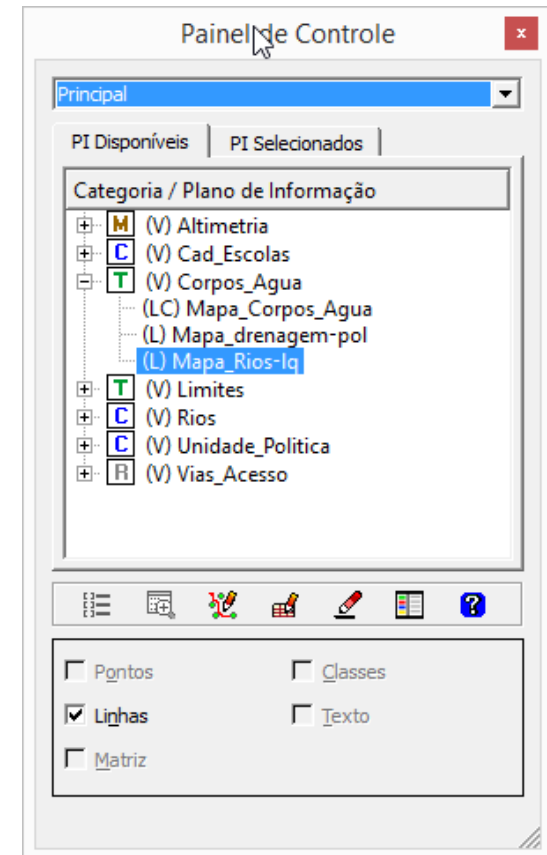
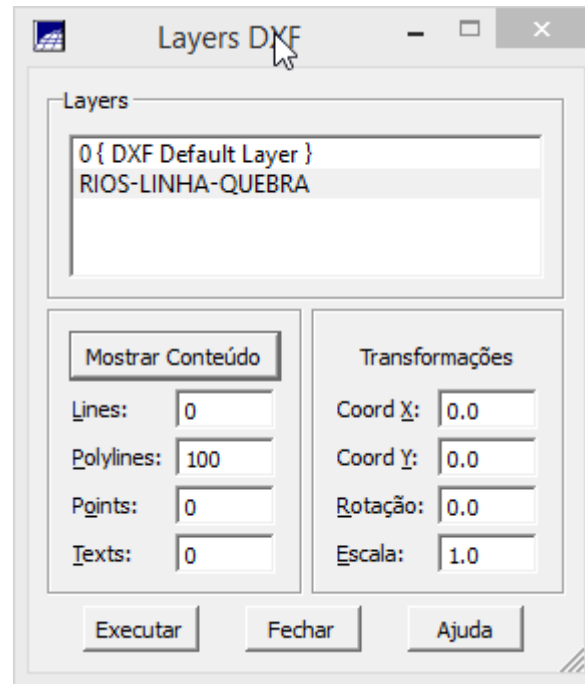
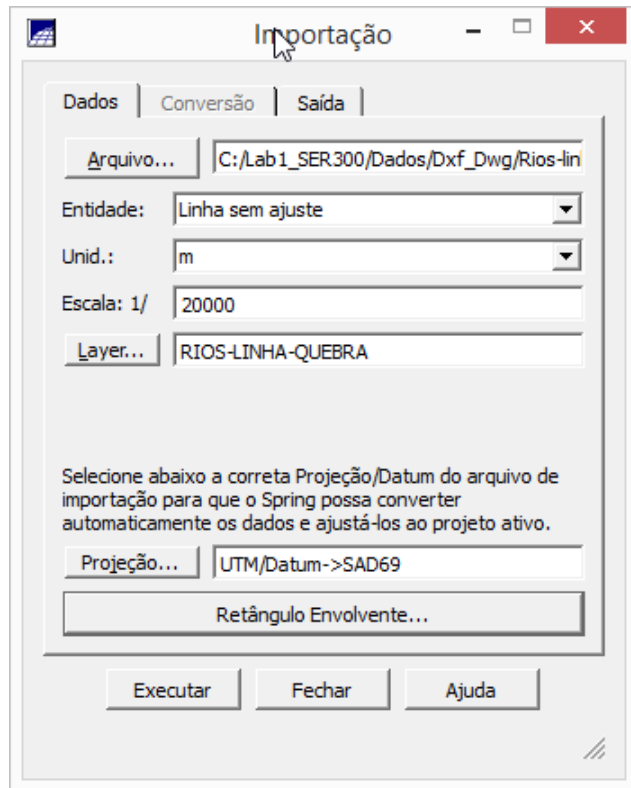
Gerando textos para amostras de PI numérico:



Exercício 9 – Gerar grade triangular – TIN

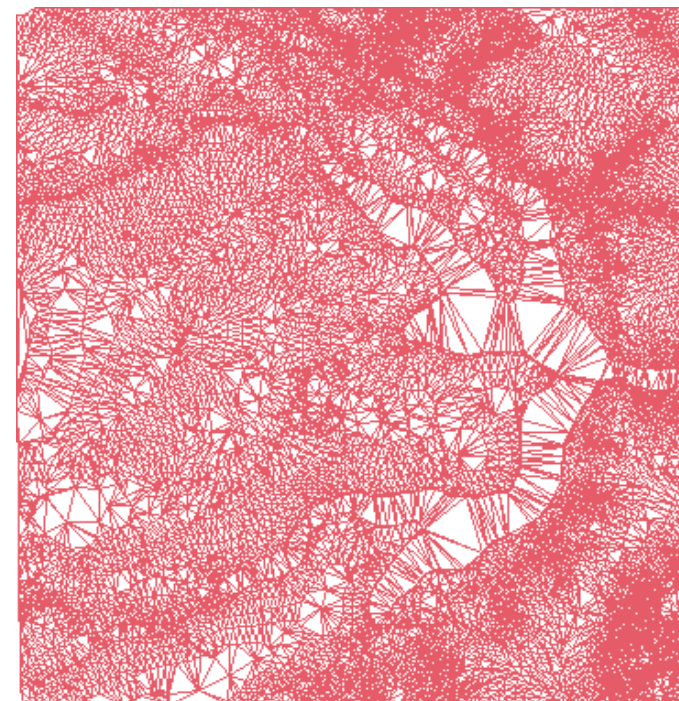
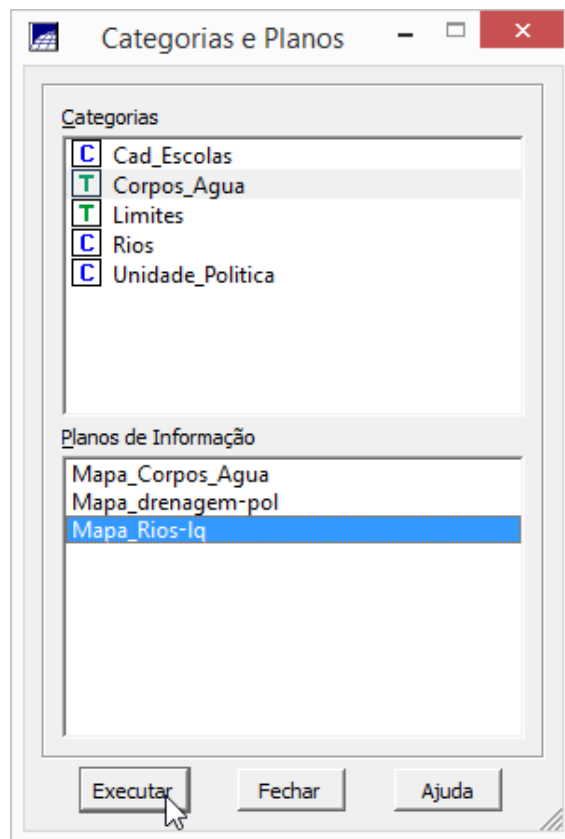
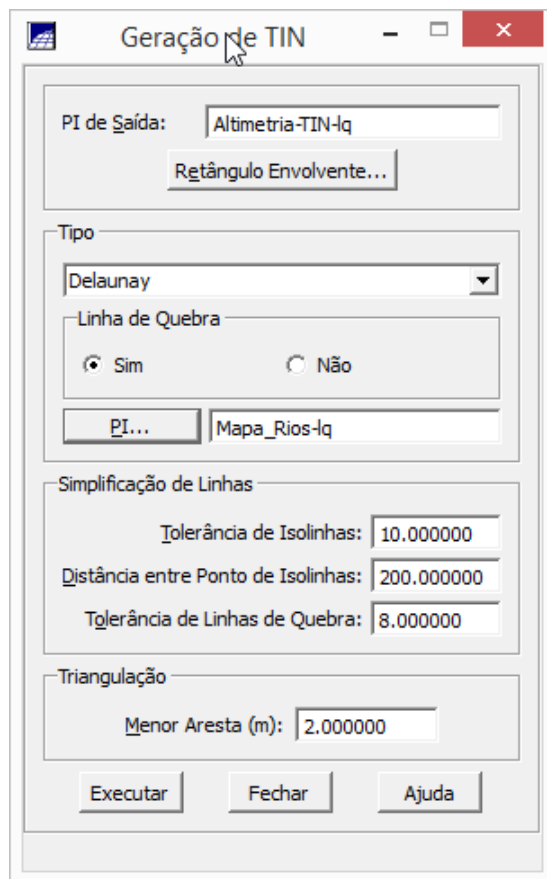
Passo 1 – Importar a drenagem de arquivo DXF para PI temático

Importando linhas de drenagem de arquivo DXF:



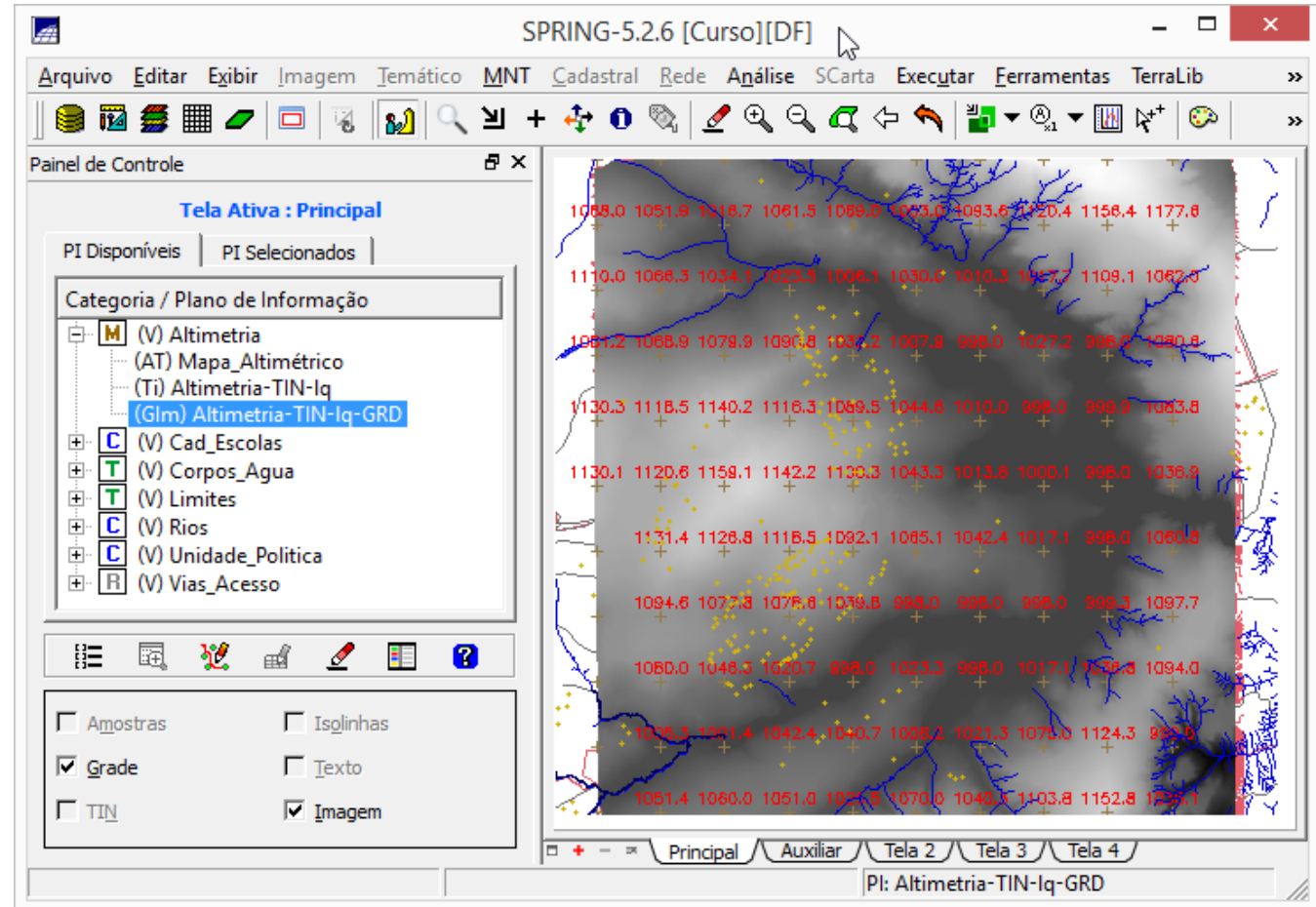
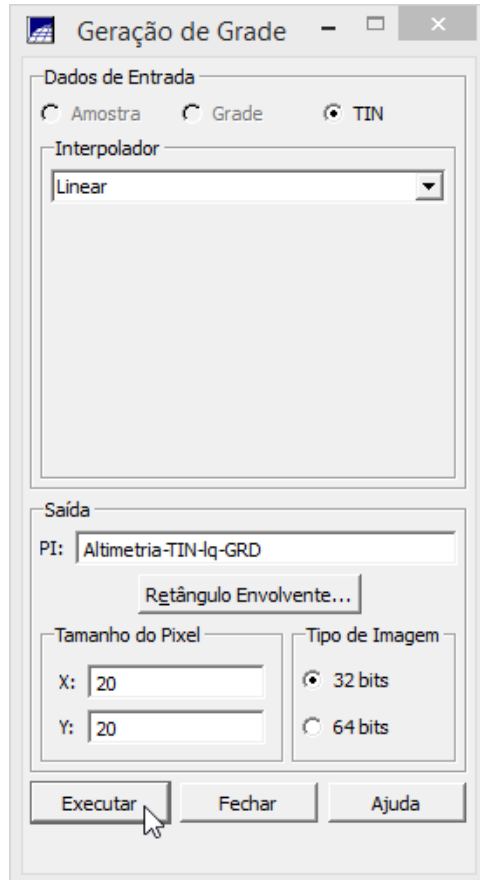
Passo 2 – Gerar grade triangular utilizando o PI drenagem como linha quebra

Gerando TIN com linhas de quebra em um novo PI:



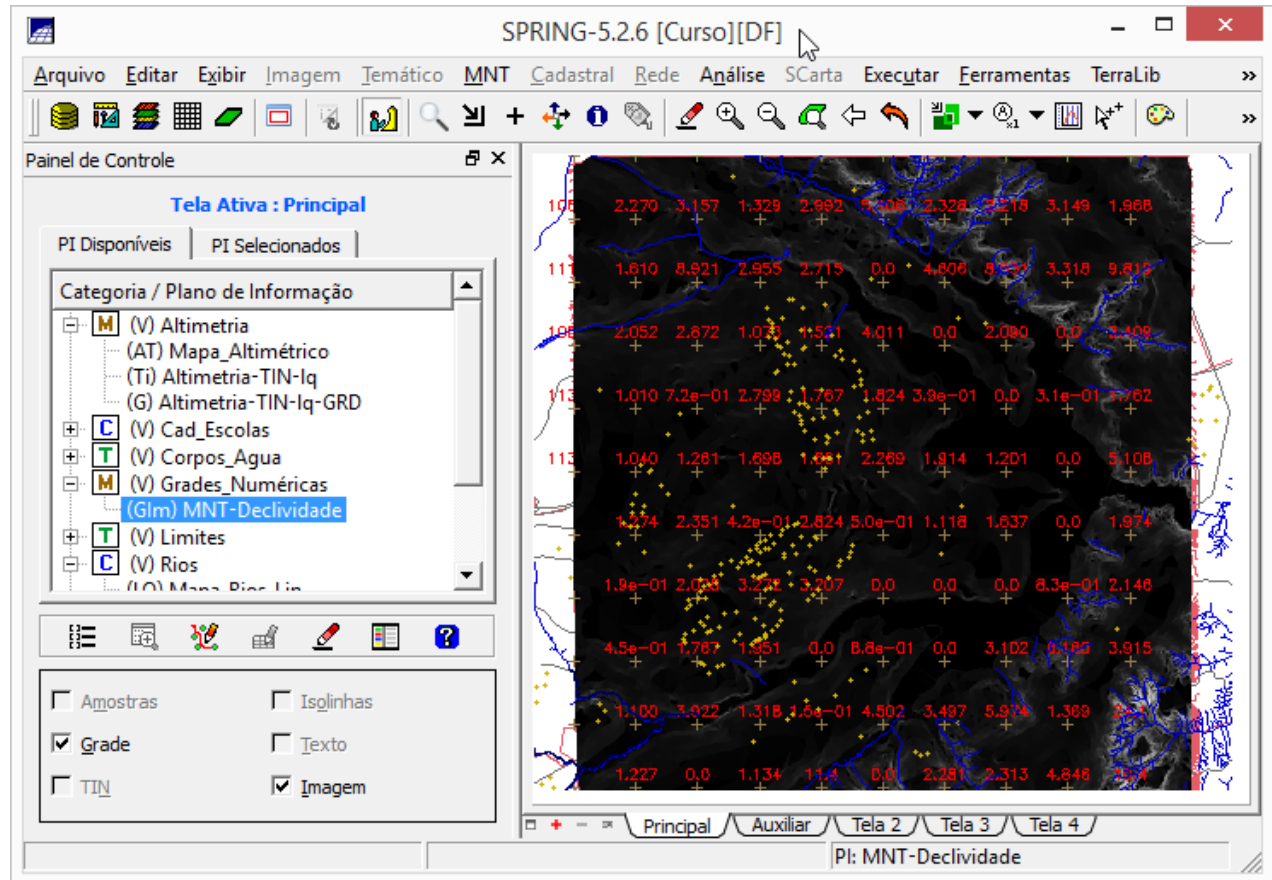
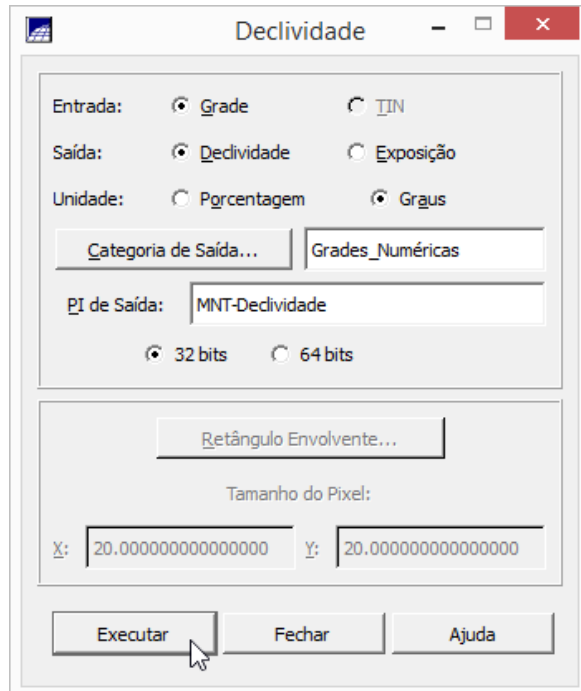
Exercício 10 – Gerar grades retangulares a partir do TIN

Gerando grade retangular a partir de um TIN em um mesmo PI:

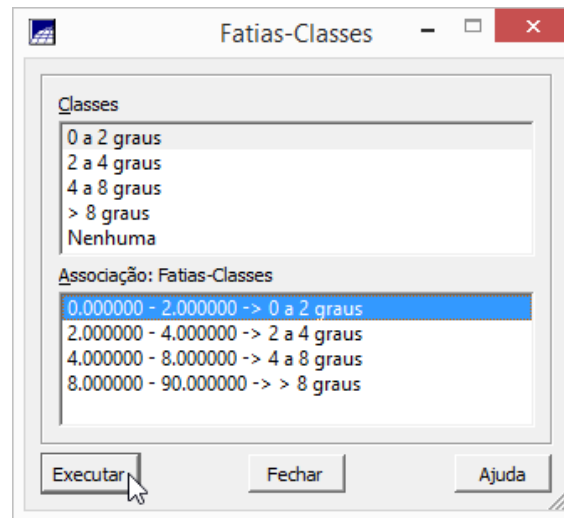
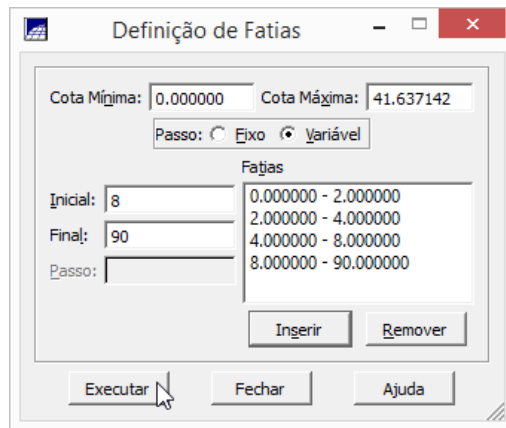


Exercício 11 – Geração de Grade de Declividade e Fatiamento

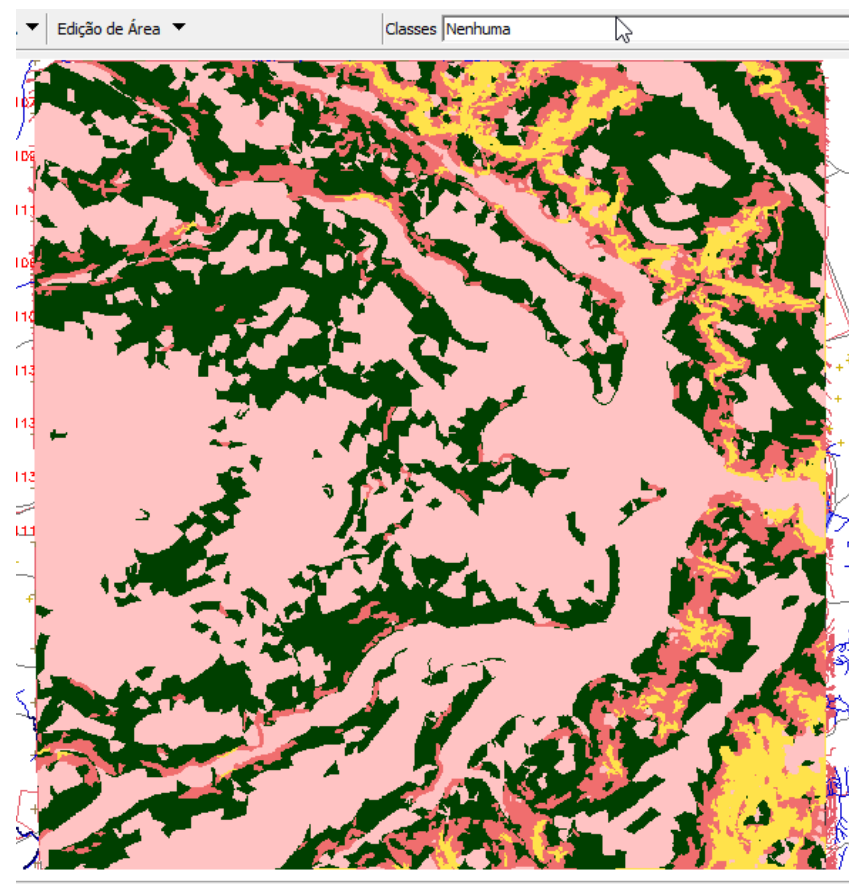
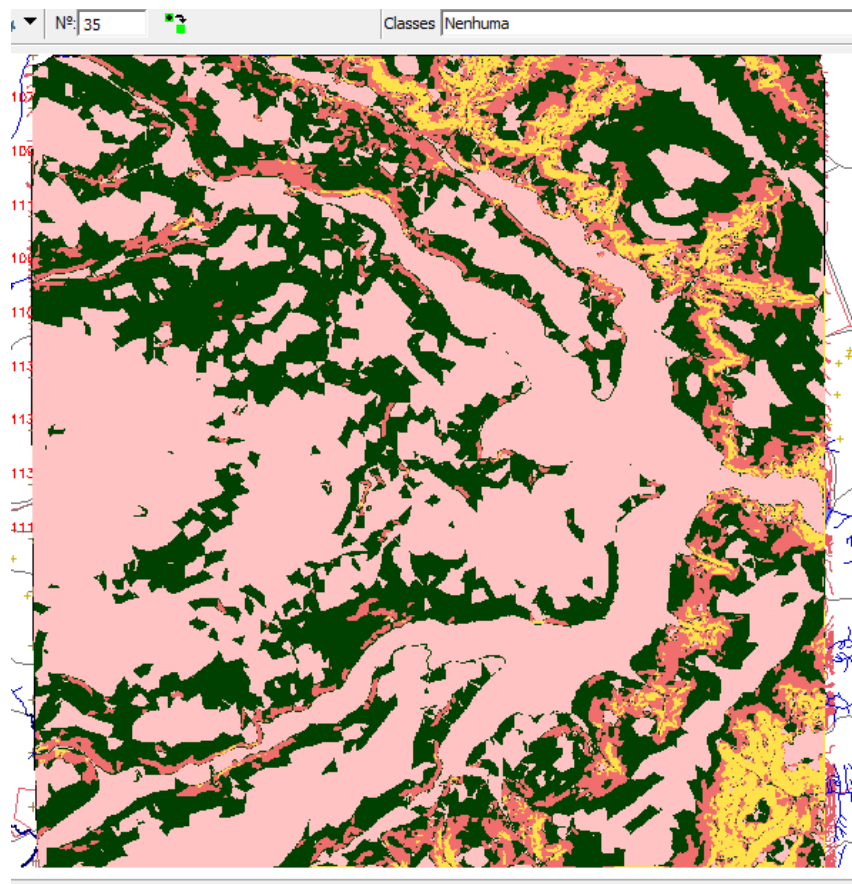
Geração de Grade de Declividade:



Fatiamento de grade regular em classes de declividade:



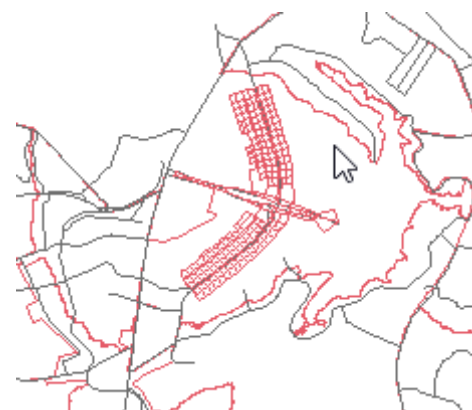
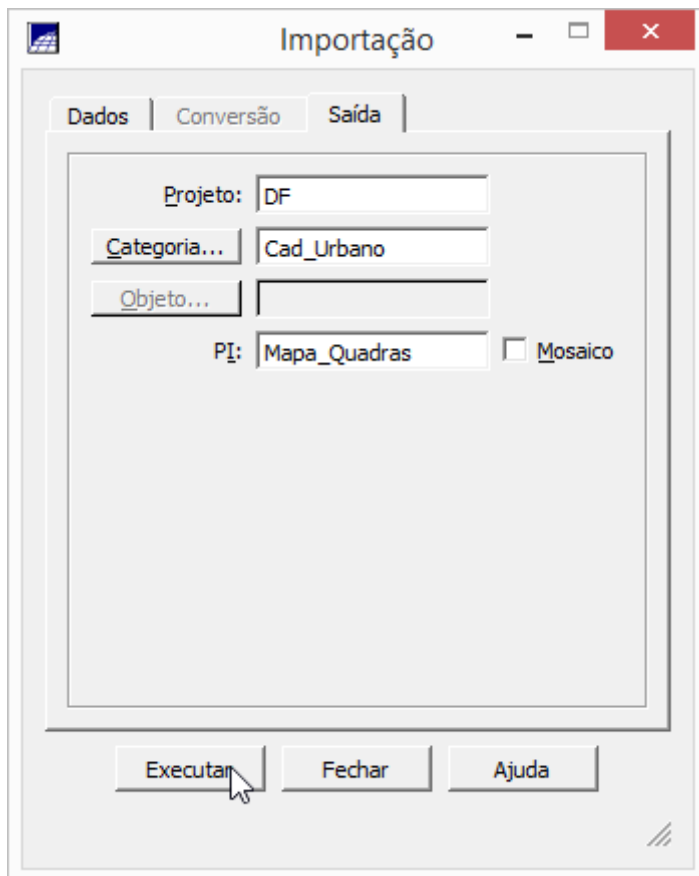
Limpendo pixels com edição matricial:



Exercício 12 - Criar Mapa Quadras de Brasília

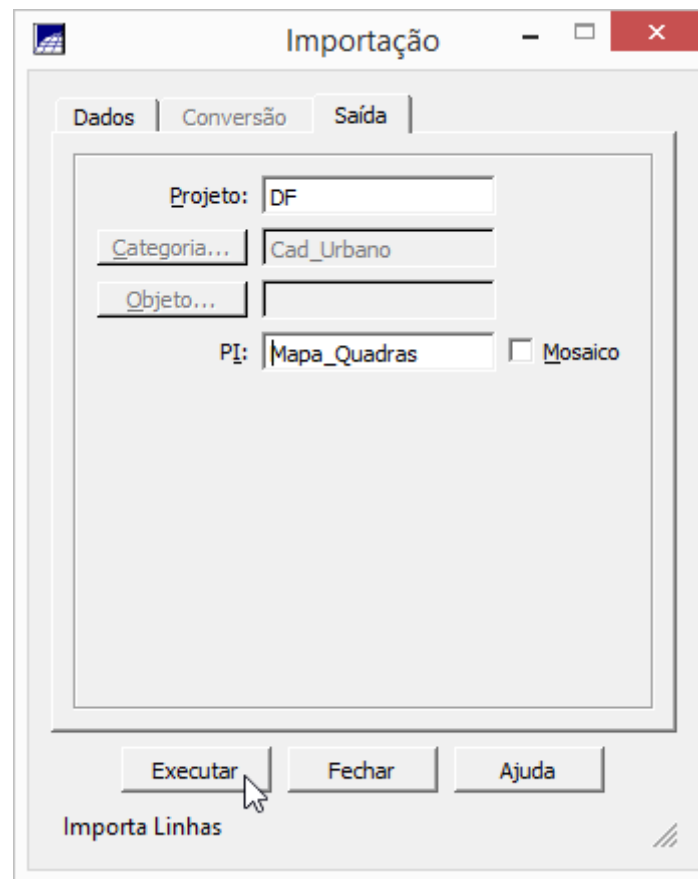
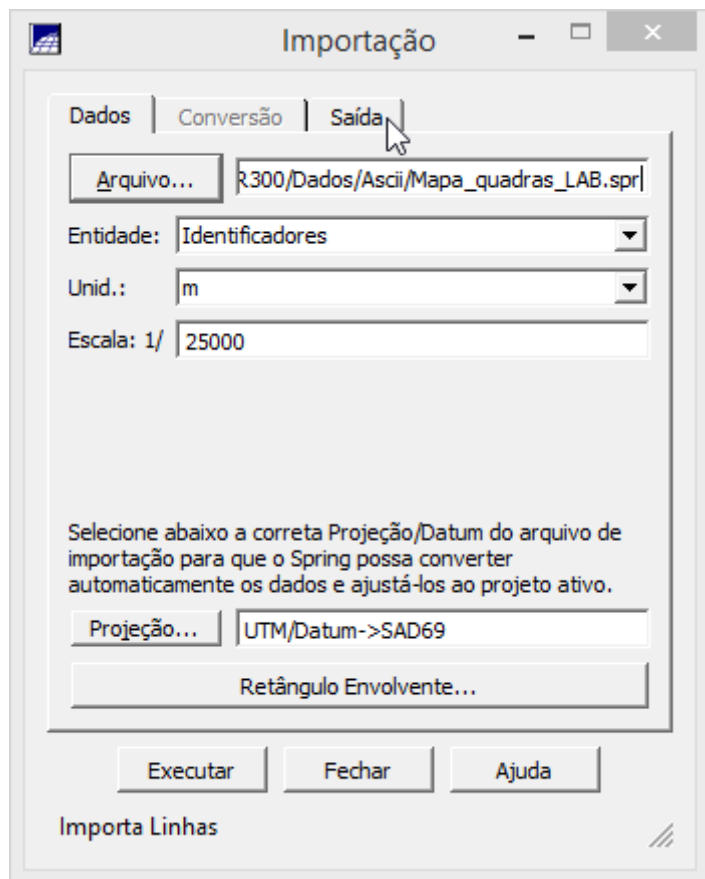
Passo 1 – Importar arquivo de linhas para criar mapa cadastral

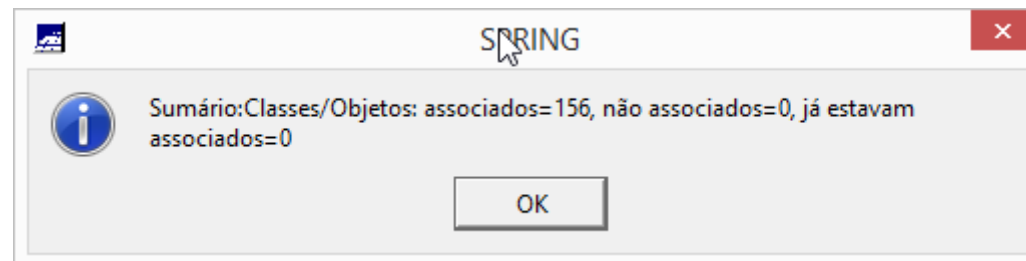
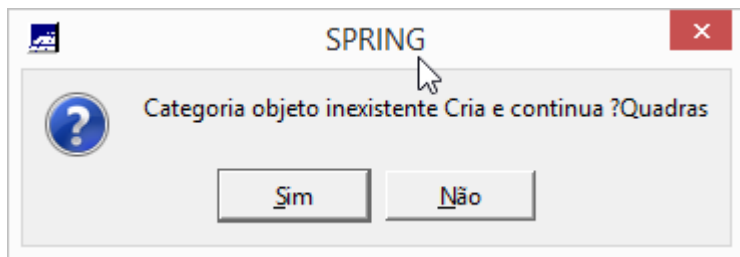
Importando linhas das quadras de Brasília:



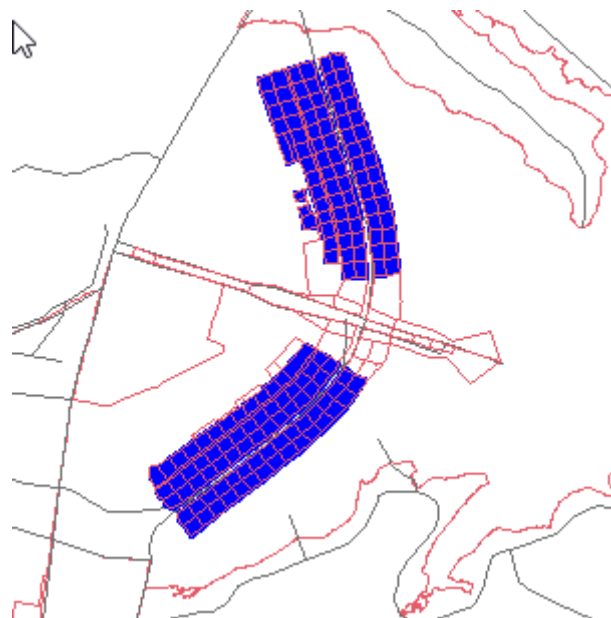
Passo 2 – Associação automática de objetos e importação de tabela ASCII

Importando arquivo de identificadores para quadras:

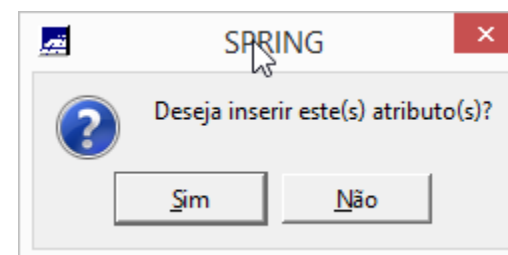
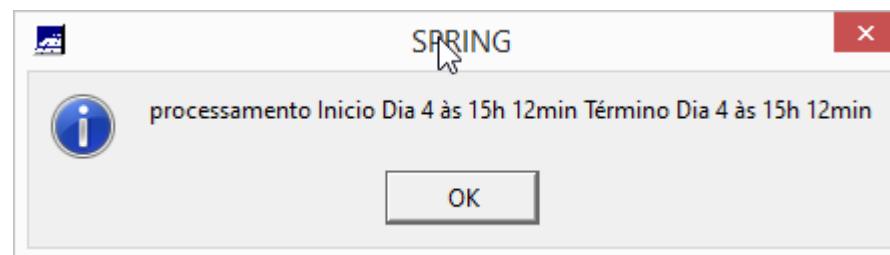
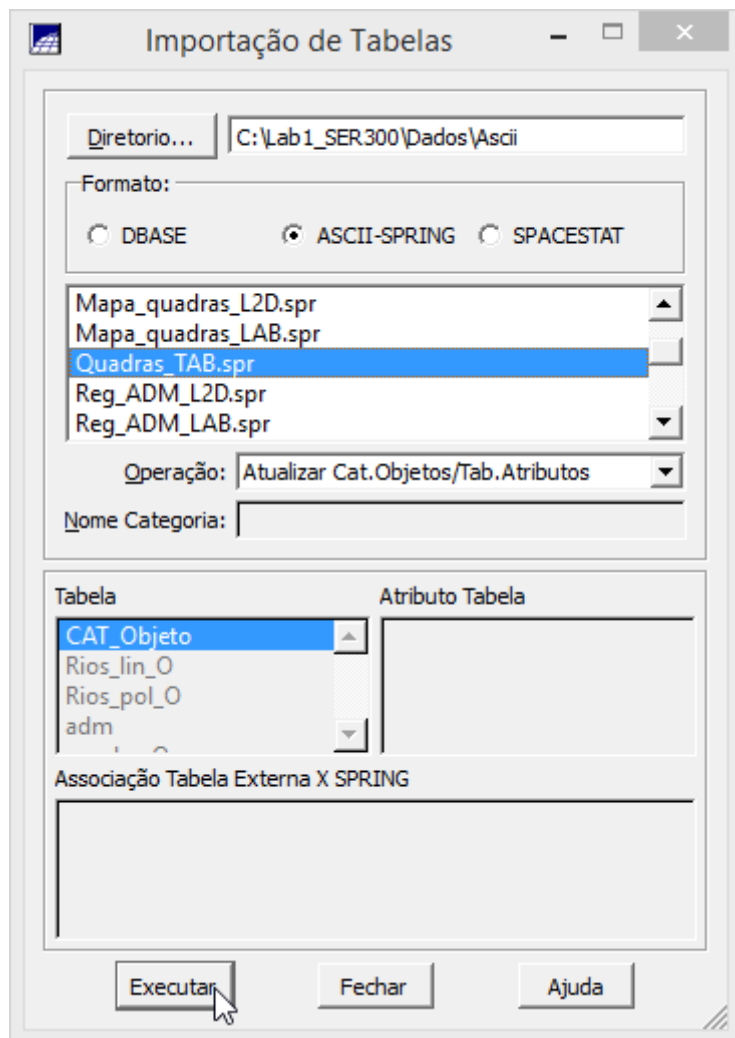




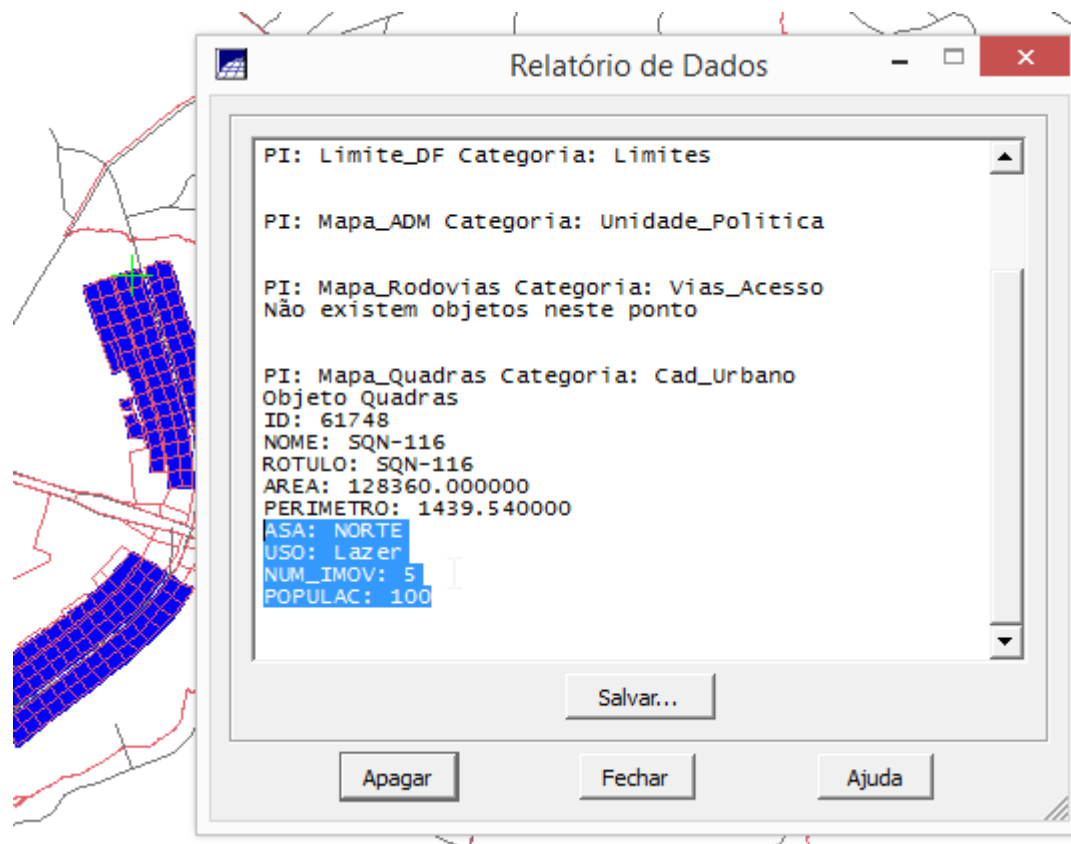
Visualizando o plano de informação Mapa_Quadras como objetos:



Importando arquivo com atributos das quadras:

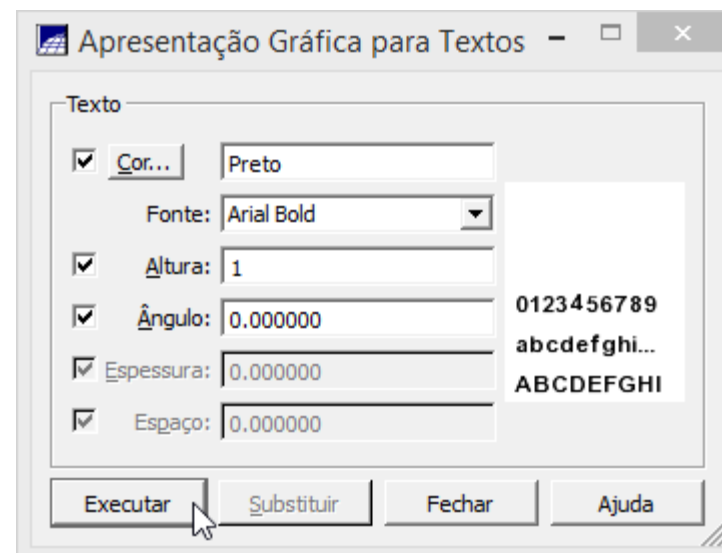
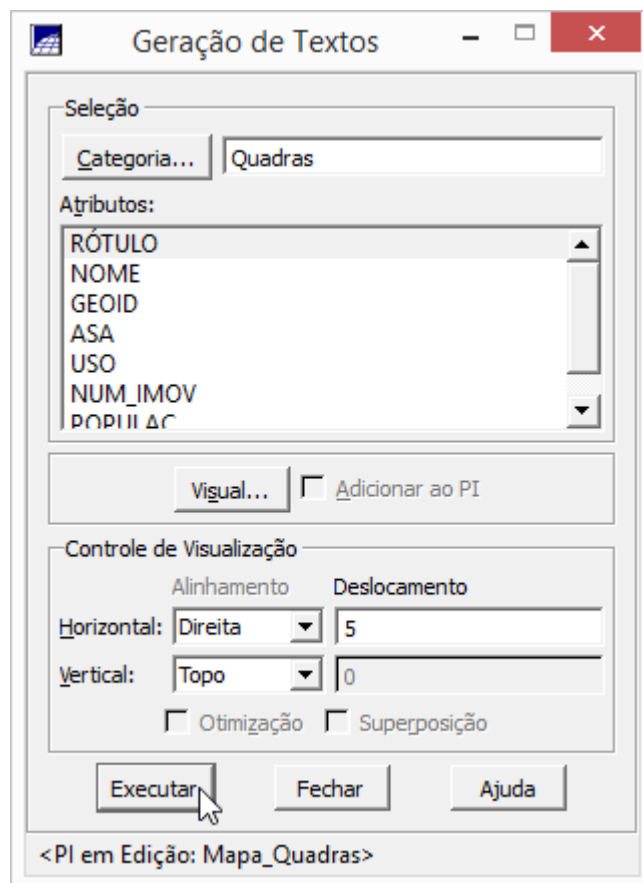


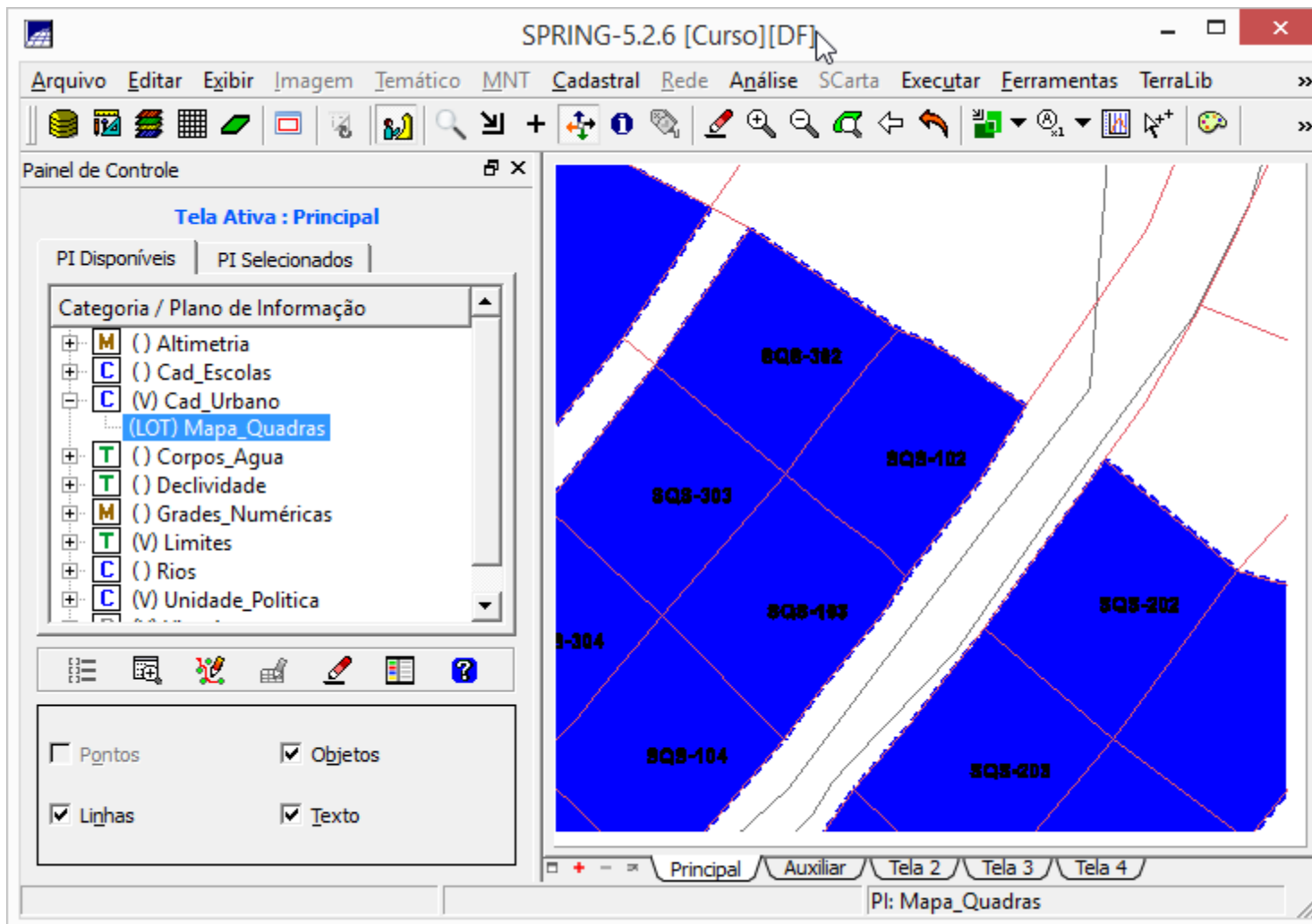
Verificando atributos das quadras:



Passo 4 – Geração de toponímia dentro de cada polígono

Criando textos para o mapa de quadras:





Passo 5 – Carregar módulo de consulta e verificar tabela

Visualizando um mapa cadastral na tela principal e seus atributos:

Geração e Seleção de Coleção

Atributos: ID, NOME, ROTULO, AREA, PERIMETRO, ASA, USO, NUM_IMOV, POPULAC

Operações: =, <>, >, <, >=, <=

Valores: T, E, N

Expressão Lógica:

Categorias de Objeto: Quadras

Coleções: TUDO

Coleção: Criar

Área: Obter via Cursor

Y1: Y2:

X1: X2:

Aplicar Suprimir

Gerar Cancelar Fechar Ajuda

Tabela

	ID	NOME	ROTULO	AREA	PERIMETRO	ASA	USO	NUM_IMOV	POPULAC
1	61734	SQN-102	SQN-102	110770.000000	1345.510000	NORTE	Hotelaria	12	3500
2	61735	SQN-103	SQN-103	110082.000000	1336.190000	NORTE	Publico	15	250
3	61736	SQN-104	SQN-104	104903.000000	1310.890000	NORTE	Publico	18	300
4	61737	SQN-105	SQN-105	106524.000000	1305.890000	NORTE	Publico	100	400
5	61738	SQN-106	SQN-106	101699.000000	1279.400000	NORTE	Residencial	120	500
6	61739	SQN-107	SQN-107	95459.000000	1248.970000	NORTE	Residencial	35	140
7	61740	SQN-108	SQN-108	108359.000000	1323.460000	NORTE	Residencial	24	100
8	61741	SQN-109	SQN-109	104378.000000	1301.070000	NORTE	Residencial	24	120
9	61742	SQN-110	SQN-110	113198.000000	1351.420000	NORTE	Residencial	30	120
10	61743	SQN-111	SQN-111	112457.000000	1340.520000	NORTE	Residencial	30	150
11	61744	SQN-112	SQN-112	109396.000000	1325.760000	NORTE	Residencial	30	200
12	61745	SQN-113	SQN-113	103022.000000	1287.300000	NORTE	Comercial	15	300
13	61746	SQN-114	SQN-114	105360.000000	1300.160000	NORTE	Comercial	18	400
14	61747	SQN-115	SQN-115	116923.000000	1372.410000	NORTE	Residencial	30	180
15	61748	SQN-116	SQN-116	128360.000000	1439.540000	NORTE	Lazer	5	100

Consultando o módulo Tabela através do Mapa_Quadras:

The screenshot displays the SPRING-5.2.6 [Curso][DF] application window. The interface includes a menu bar (Arquivo, Editar, Exibir, Imagem, Temático, MNT, Cadastral, Rede, Análise, SCarta, Executar, Ferramentas, TerraLib) and a toolbar with various icons. A 'Visualização de Objetos' panel on the left shows a tree view with 'Quadras' selected. The main map area shows a grid of blue blocks with red outlines, representing a cadastral map. Below the map is a 'Tabela' window displaying a data table with 10 rows and 10 columns. The first row is highlighted in green.

	ID	NOME	ROTULO	AREA	PERIMETRO	ASA	USO	NUM_IMOV	POPULAC
1	61734	SQN-102	SQN-102	110770.000000	1345.510000	NORTE	Hotelaria	12	3500
2	61735	SQN-103	SQN-103	110082.000000	1336.190000	NORTE	Publico	15	250
3	61736	SQN-104	SQN-104	104903.000000	1310.890000	NORTE	Publico	18	300
4	61737	SQN-105	SQN-105	106524.000000	1305.890000	NORTE	Publico	100	400
5	61738	SQN-106	SQN-106	101699.000000	1279.400000	NORTE	Residencial	120	500
6	61739	SQN-107	SQN-107	95459.000000	1248.970000	NORTE	Residencial	35	140
7	61740	SQN-108	SQN-108	108359.000000	1323.460000	NORTE	Residencial	24	100
8	61741	SQN-109	SQN-109	104378.000000	1301.070000	NORTE	Residencial	24	120
9	61742	SQN-110	SQN-110	113198.000000	1351.420000	NORTE	Residencial	30	120
10	61743	SQN-111	SQN-111	112457.000000	1240.530000	NORTE	Residencial	20	150

At the bottom right of the table window, the text 'Pt: Mapa_Quadras' is visible.

Mudando a cor corrente para posterior seleção de linhas:

Tabela								
ID	NOME	ROTULO	AREA	PERIMETRO	ASA	USO	NUM_IMC	
1	61734	SQN-102	SQN-102	110770.000000	1345.510000	NORTE	Hotelaria	12
2	61735	SQN-103	SQN-103	110082.000000	1336.190000	NORTE	Publico	15
3	61736	SQN-104	SQN-104	104903.000000	1310.890000	NORTE	Publico	18
4	61737	SQN-105	SQN-105	106524.000000	1305.890000	NORTE	Publico	100
5	61738	SQN-106	SQN-106	101699.000000	1279.400000	NORTE	Residencial	120
6	61739	SQN-107	SQN-107	95459.000000	1248.970000	NORTE	Residencial	35
7	61740	SQN-108	SQN-108	108359.000000	1323.460000	NORTE	Residencial	24
8	61741	SQN-109	SQN-109	104378.000000	1301.070000	NORTE	Residencial	24
9	61742	SQN-110	SQN-110	113198.000000	1351.420000	NORTE	Residencial	30
10	61743	SQN-111	SQN-111	112457.000000	1340.520000	NORTE	Residencial	30
11	61744	SQN-112	SQN-112	109396.000000	1325.760000	NORTE	Residencial	30
12	61745	SQN-113	SQN-113	103022.000000	1287.300000	NORTE	Comercial	15
13	61746	SQN-114	SQN-114	105360.000000	1300.160000	NORTE	Comercial	18
14	61747	SQN-115	SQN-115	116923.000000	1372.410000	NORTE	Residencial	30
15	61748	SQN-116	SQN-116	128360.000000	1439.540000	NORTE	Lazer	5

SPRING-5.2.6 [Curso][DF]

Arquivo Editar Exibir Imagem Temático MNT Cadastral Rede Análise SCarta Executar Ferramen

Painel de Controle

Tela Ativa : Principal

PI Disponíveis | PI Seleccionados

Categoria / Plano de Informação

- M () Altimetria
- C () Cad_Escolas
- C (V) Cad_Urbano
 - (LOT) Mapa_Quadras
- T () Corpos_Agua
- T () Declividade
- M () Grades_Numéricas
- T (V) Limites
- C () Rios

Pontos Objetos

Linhas Texto

Painel de Controle Visualização de Objetos

Principal Auxiliar Tela 2 Tela 3

PI: Mapa_Quadras

Desmarcando TODAS as linhas selecionadas na tabela:

1		-102	SQN-102	110770.0
2	Marcas	-103	SQN-103	110082.0
3	Remover			903.0
4	Mover			524.0
5				699.0
6	Zoom	-107	SQN-107	95459.00
7	Atributos...	-108	SQN-108	108359.0
8		-109	SQN-109	104378.0

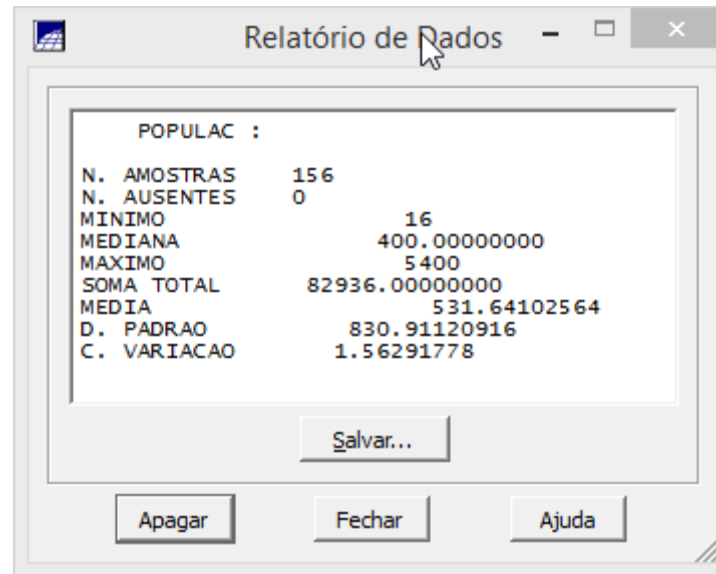
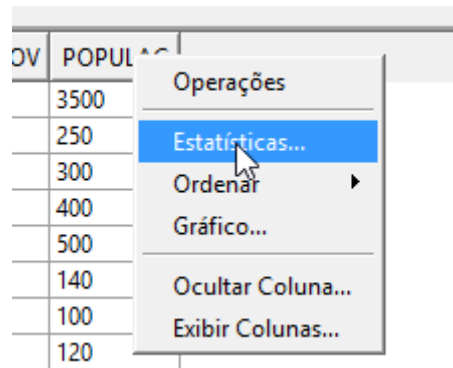
Desmarcando o conjunto de linhas selecionadas com a cor corrente:

1	61734	SQN-102	SQN-102	110770.00
2	Marcas	-103	SQN-103	110082.00
3	Remover			104903.00
4	Mover			24.00
5				99.00
6	Zoom	-107	SQN-107	95459.000
7	Atributos...	-108	SQN-108	108359.00
8		-109	SQN-109	104378.00
9	61742	SQN-110	SQN-110	113198.00

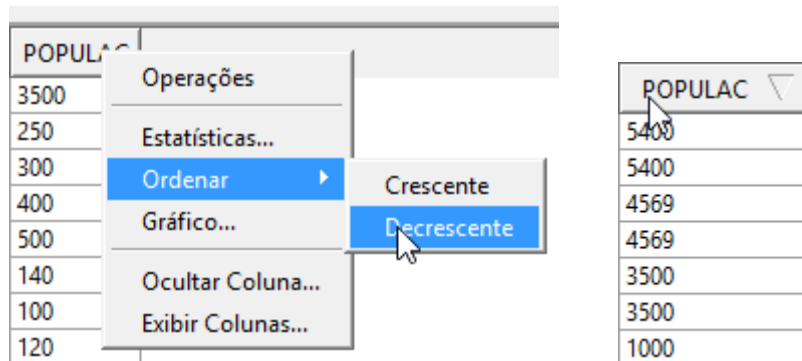
Ampliando na tela o objeto selecionado ou todos:

1	61734	SQN-102	SQN-102	110770.000000
2	Marcas	-103	SQN-103	110082.000000
3	Remover	-104	SQN-104	104903.000000
4	Mover	-105	SQN-105	106524.000000
5		-106	SQN-106	101699.000000
6	Zoom			000000
7	Atributos...			000000
8				000000
9	61742	SQN-110	SQN-110	113198.000000

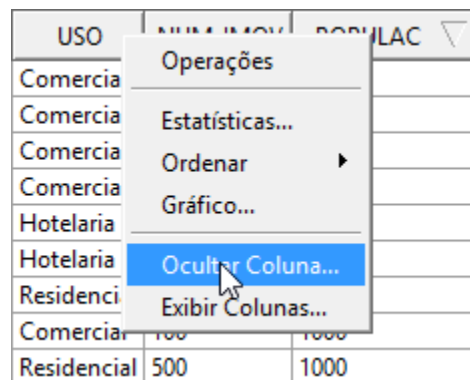
Exibindo estatísticas básicas para atributos numéricos:



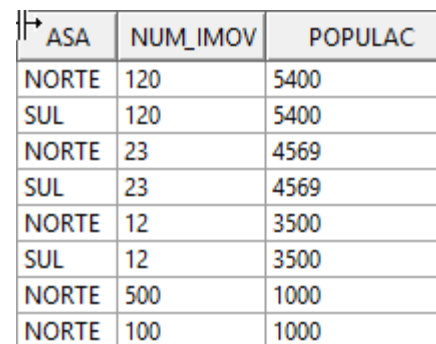
Ordenamento por atributos



Ocultando coluna durante exibição da tabela:

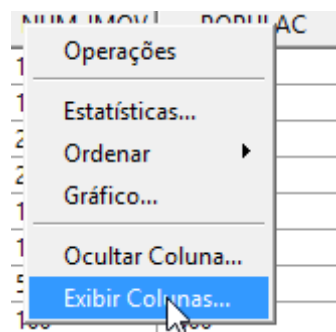


USO	NUM_IMOV	POPULAC
Comercia		
Comercia		
Comercia		
Comercia		
Hotelaria		
Hotelaria		
Residenci		
Comercia	100	1000
Residencial	500	1000

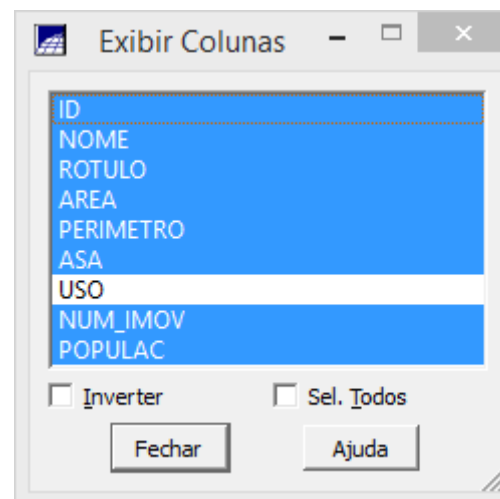


ASA	NUM_IMOV	POPULAC
NORTE	120	5400
SUL	120	5400
NORTE	23	4569
SUL	23	4569
NORTE	12	3500
SUL	12	3500
NORTE	500	1000
NORTE	100	1000

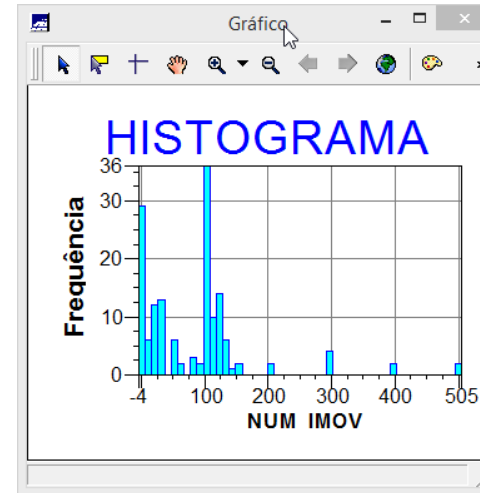
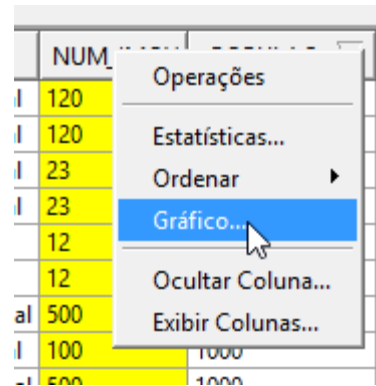
Exibindo colunas ocultas



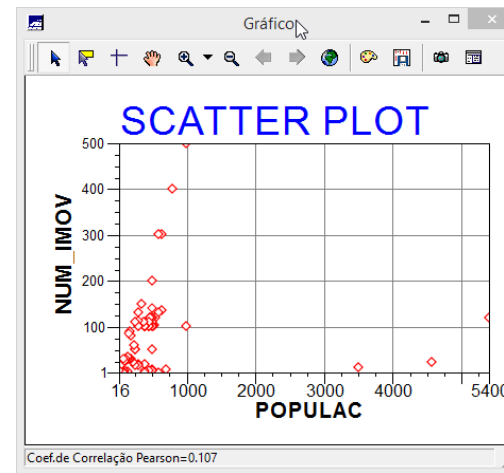
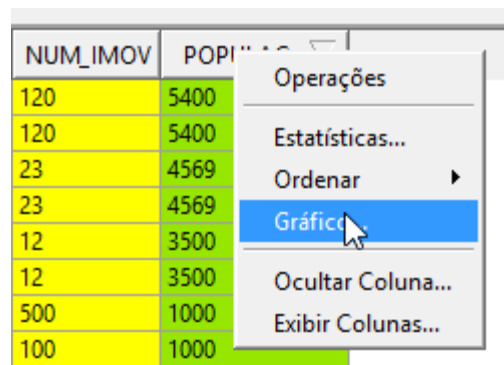
NUM_IMOV	POPULAC
1	
1	
2	
2	
1	
1	
5	
100	



Exibindo histograma:

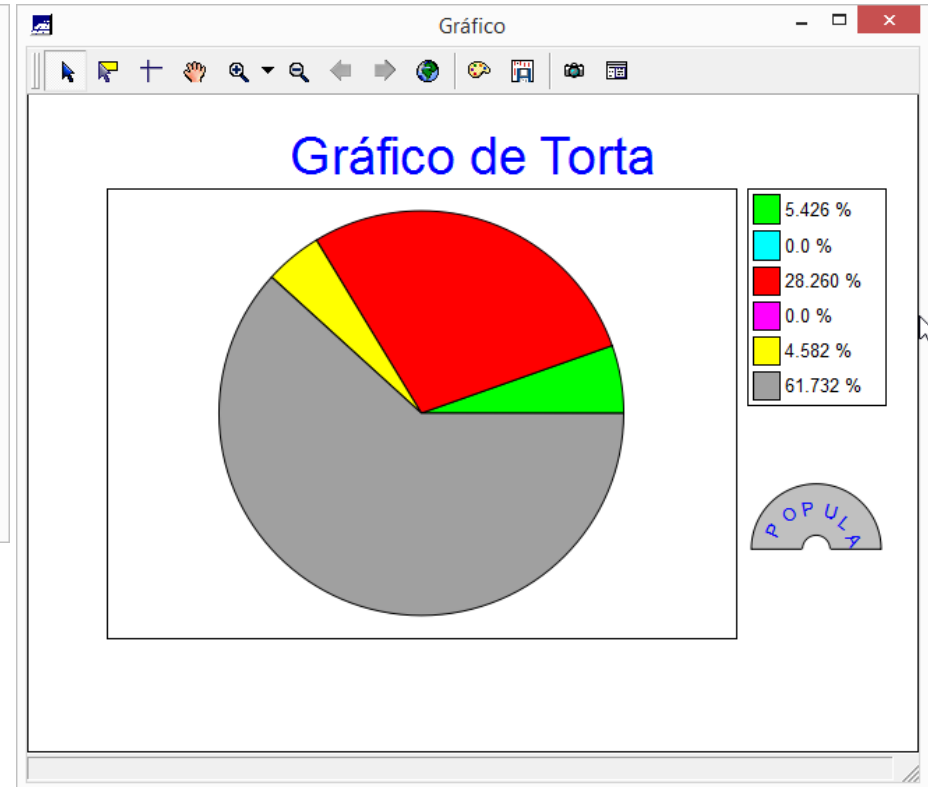


Exibindo diagrama de dispersão:



Exibindo gráfico "Pie Chart":

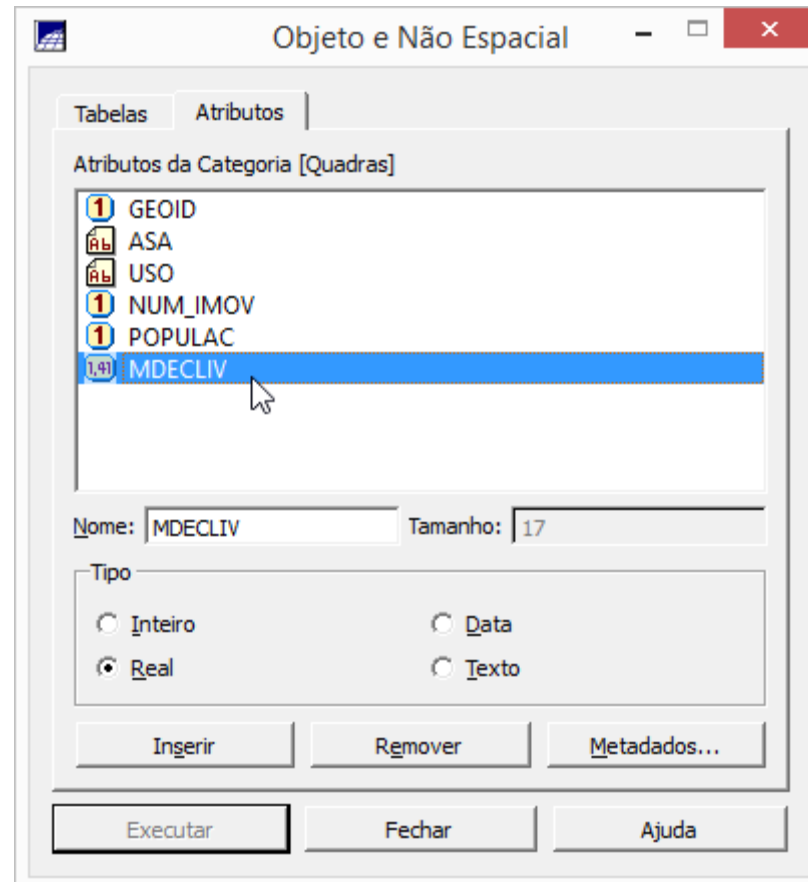
	ID	NOME	ROTULO	AREA	PERIMETRO	ASA	USO	NUM_IMOV	POPULAC
1	61728	SQN-202	SQN-202	111250.000000	1361.400000	NORTE	Comercial	120	5400
2	61801	SQS-202	SQS-202	115210.000000	1365.920000	SUL	Comercial	120	5400
3	61763	SQN-302	SQN-302	121713.000000	1410.730000	NORTE	Comercial	23	4569
4	61846	SQS-302	SQS-302	98383.600000	1261.660000	SUL	Comercial	23	4569
5	61734	SQN-102	SQN-102	110770.000000	1345.510000	NORTE	Hotelaria	12	3500
6	61816	SQS-102	SQS-102	100287.000000	1258.530000	SUL	Hotelaria	12	3500
7	61705	SQN-415	SQN-415	110053.000000	1324.810000	NORTE	Residencial	500	1000
8	61732	SQN-403	SQN-403	120512.000000	1391.500000	NORTE	Comercial	100	1000
9	61818	SQS-415	SQS-415	127513.000000	1433.150000	SUL	Residencial	500	1000
10	61830	SQS-403	SQS-403	121995.000000	1407.040000	SUL	Comercial	100	1000
11	61819	SQS-414	SQS-414	113011.000000	1346.000000	SUL	Residencial	400	800
12	61706	SQN-414	SQN-414	125543.000000	1430.460000	NORTE	Residencial	400	800
13	61733	SQN-402	SQN-402	131032.000000	1443.490000	NORTE	Hotelaria	6	700
14	61831	SQS-402	SQS-402	137684.000000	1524.730000	SUL	Hotelaria	6	700



Exercício 13 – Atualização de Atributos utilizando o LEGAL

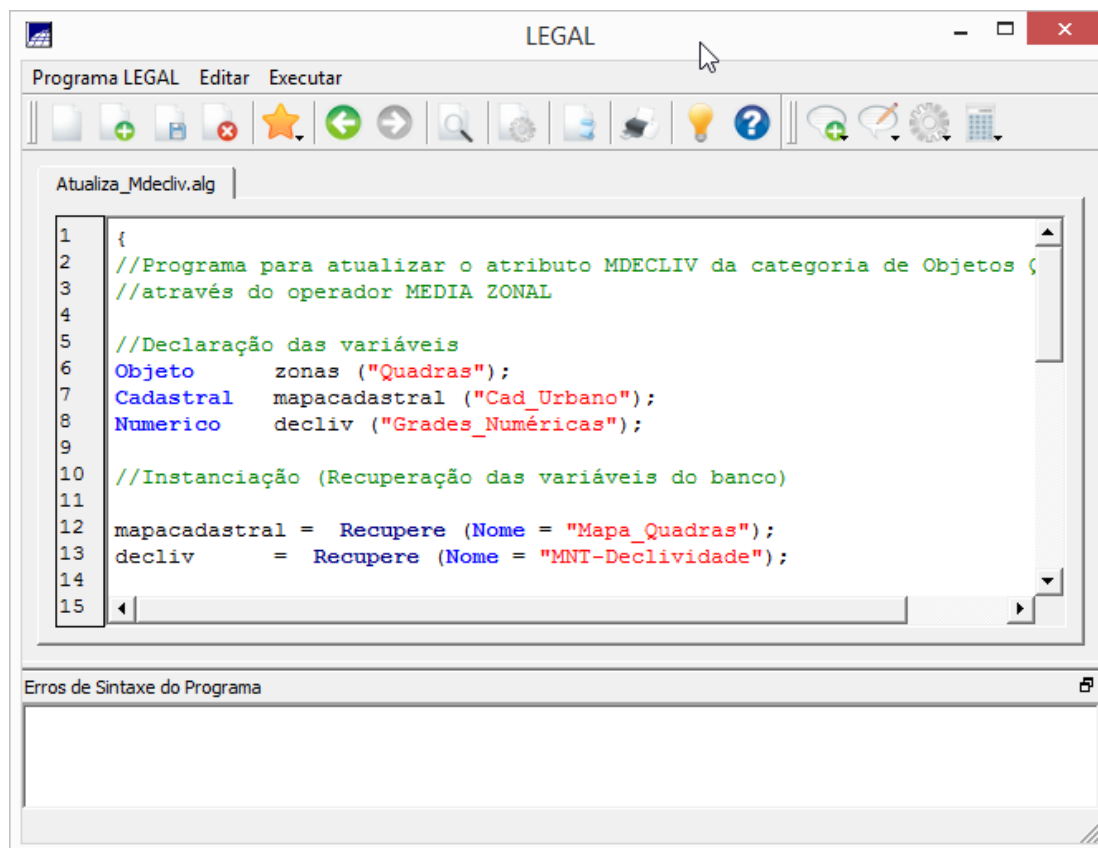
Passo 1 – Criar um novo atributo para o objeto Quadras

Inserindo um novo atributo ao objeto no banco:

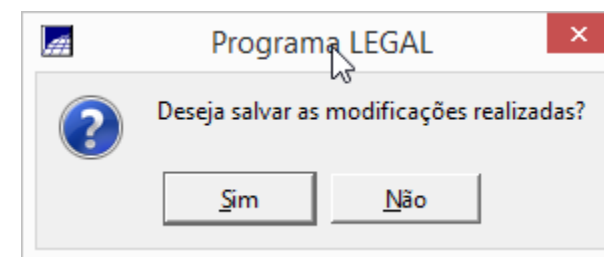
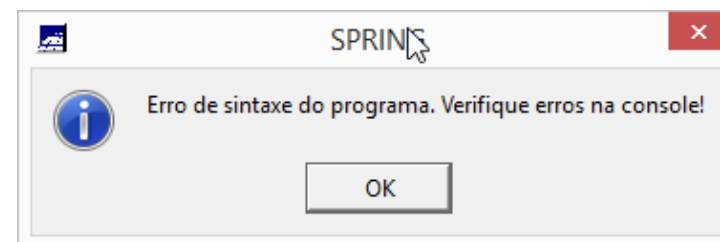


Passo 2 – Atualizar o atributo pelo operador de média zonal

Executando um programa em LEGAL:

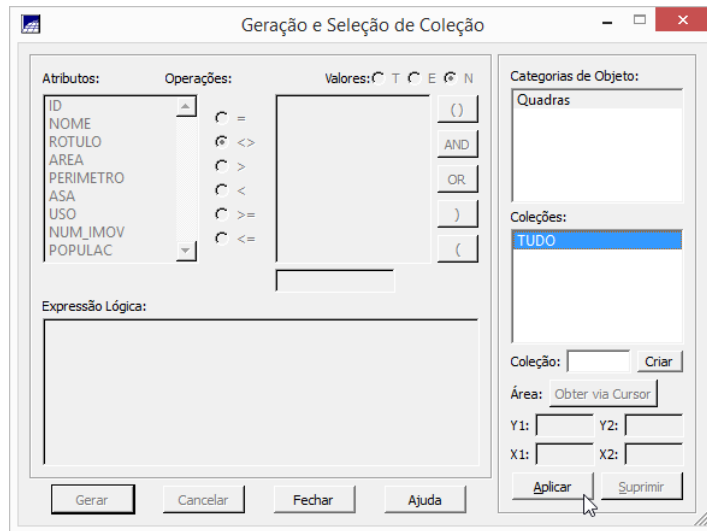


```
1 {
2 //Programa para atualizar o atributo MDECLIV da categoria de Objetos (
3 //através do operador MEDIA ZONAL
4
5 //Declaração das variáveis
6 Objeto      zonas ("Quadras");
7 Cadastral  mapacadastral ("Cad_Urbano");
8 Numerico   decliv ("Grades_Numéricas");
9
10 //Instanciação (Recuperação das variáveis do banco)
11
12 mapacadastral = Recupere (Nome = "Mapa_Quadras");
13 decliv       = Recupere (Nome = "MNT-Declividade");
14
15
```



*Erro acentuação corrigido, variável "Grades_Numéricas" carecia de acentuação.

Visualizando um mapa de quadras com o novo atributo calculado:

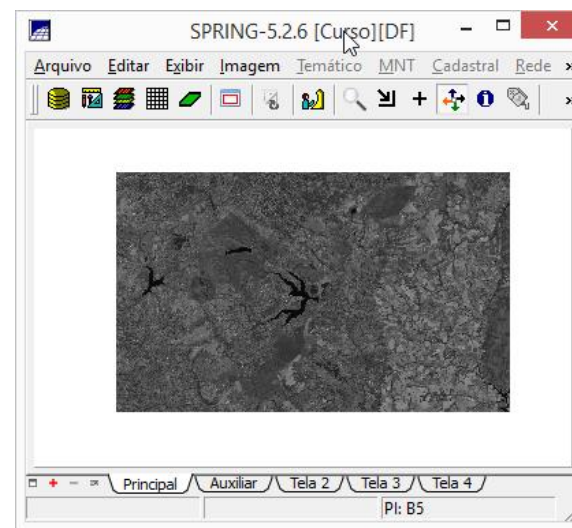
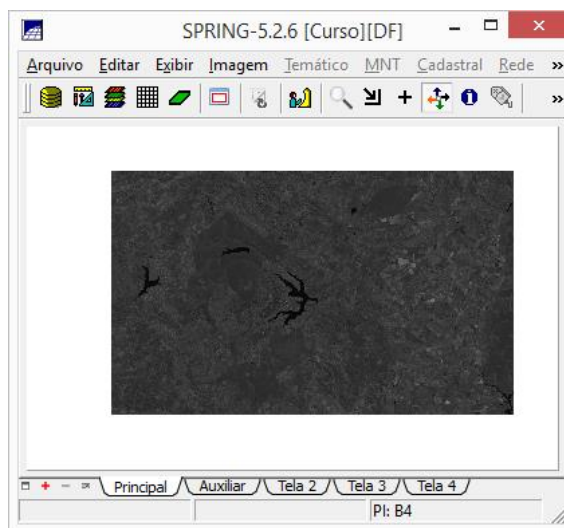
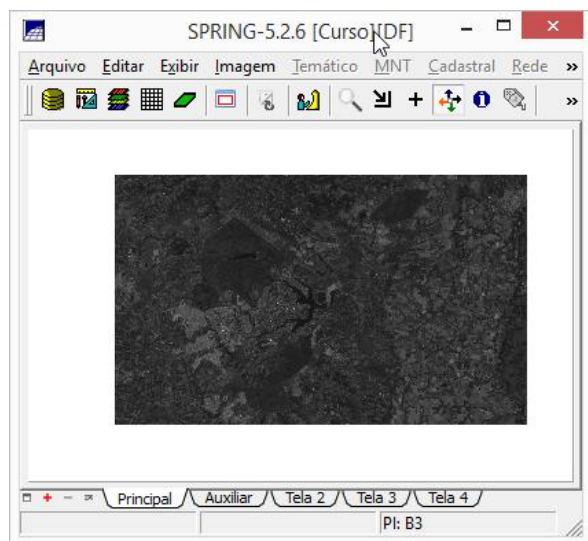


Tabela

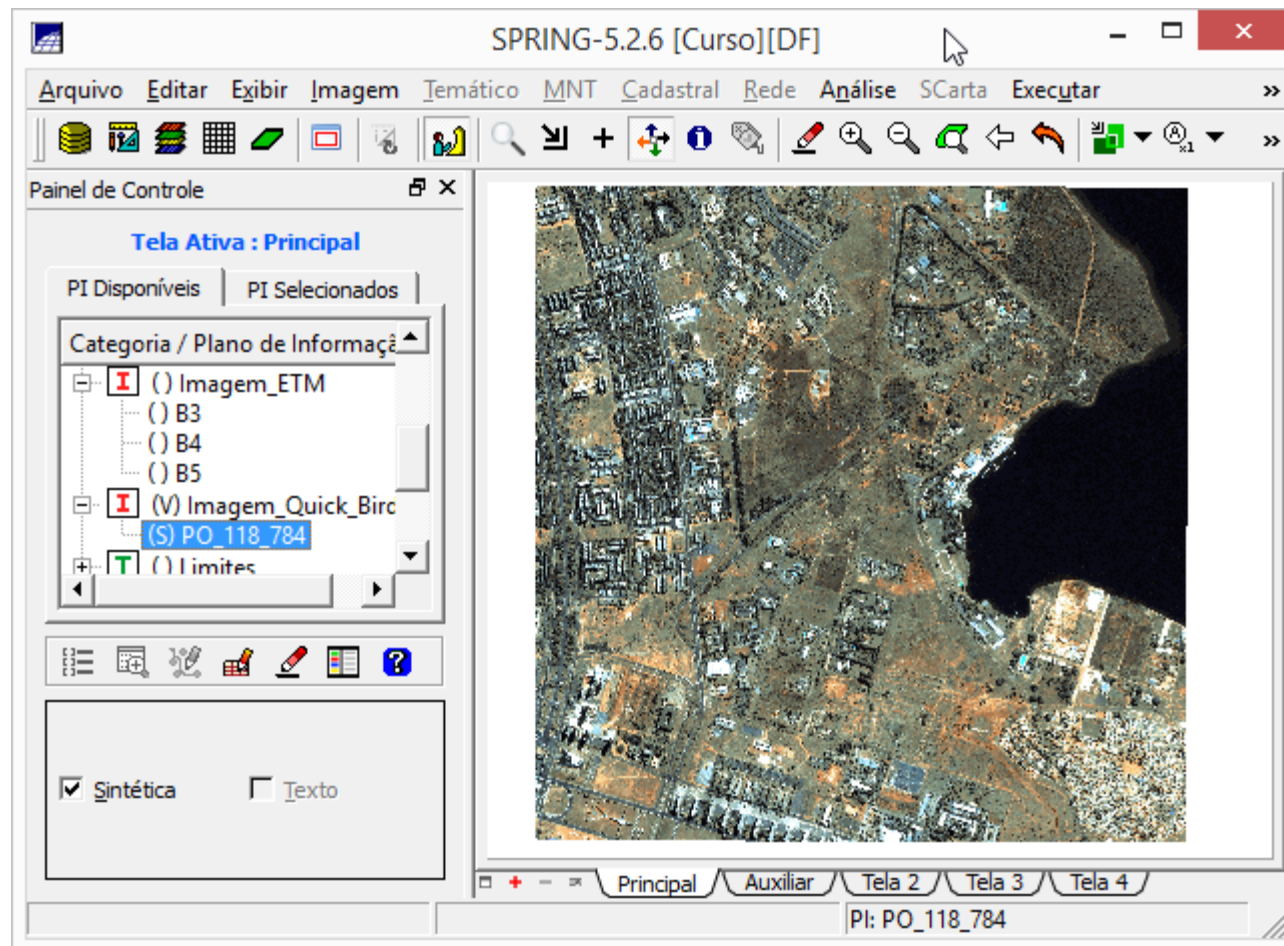
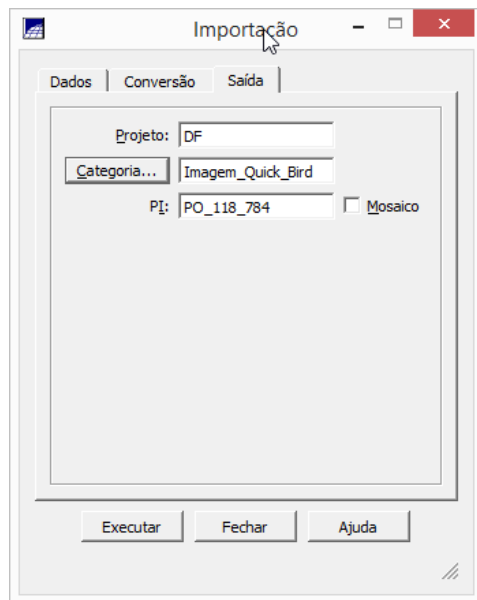
	PERIMETRO	ASA	USO	NUM_IMOV	POPULAC	MDECLIV	
1	0000	1345.510000	NORTE	Hotelaria	12	3500	2.433731
2	0000	1336.190000	NORTE	Publico	15	250	1.999323
3	0000	1310.890000	NORTE	Publico	18	300	2.496247
4	0000	1305.890000	NORTE	Publico	100	400	1.882608
5	0000	1279.400000	NORTE	Residencial	120	500	2.612750
6	000	1248.970000	NORTE	Residencial	35	140	1.982568
7	0000	1323.460000	NORTE	Residencial	24	100	1.774788
8	0000	1301.070000	NORTE	Residencial	24	120	1.913394
9	0000	1351.420000	NORTE	Residencial	30	120	1.967760
10	0000	1340.520000	NORTE	Residencial	30	150	1.622283
11	0000	1325.760000	NORTE	Residencial	30	200	2.465200
12	0000	1287.300000	NORTE	Comercial	15	300	2.767637

Exercício 14 – Importação de Imagem Landsat e Quick-Bird

Importando as bandas de uma cena Landsat ETM como referência:



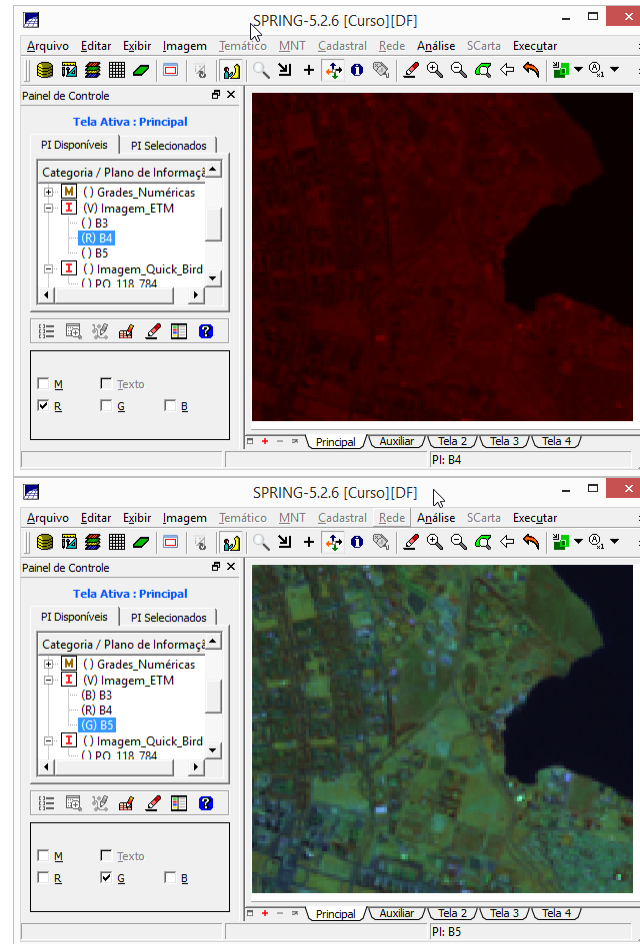
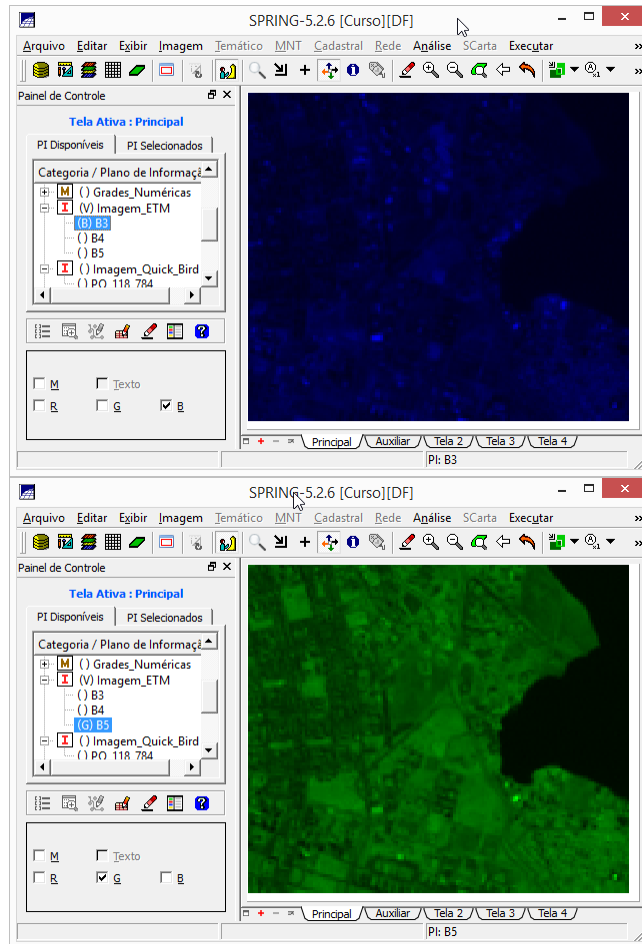
Importando as bandas de uma cena Landsat ETM como referência:



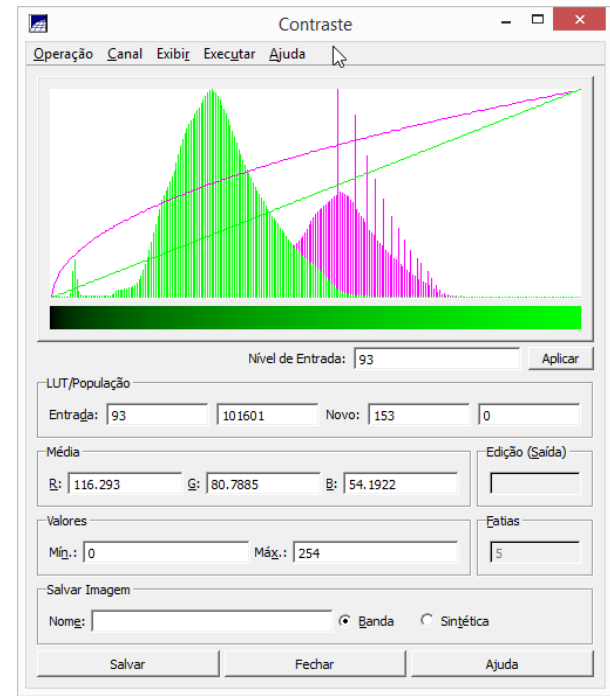
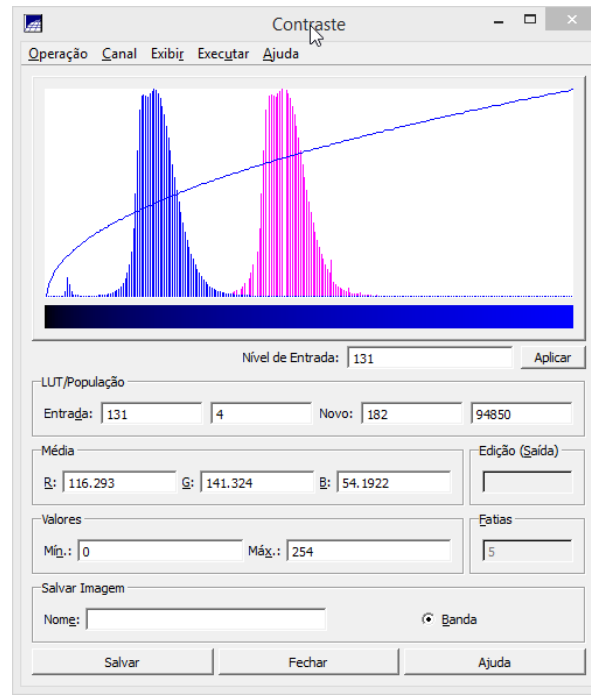
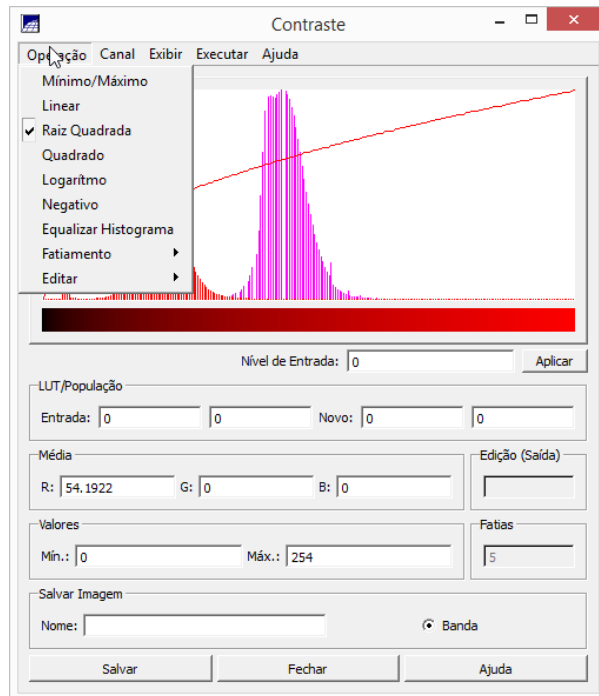
Exercício 15 – Classificação supervisionada por píxel

Passo 1 – Criar uma imagem sintética de fundo

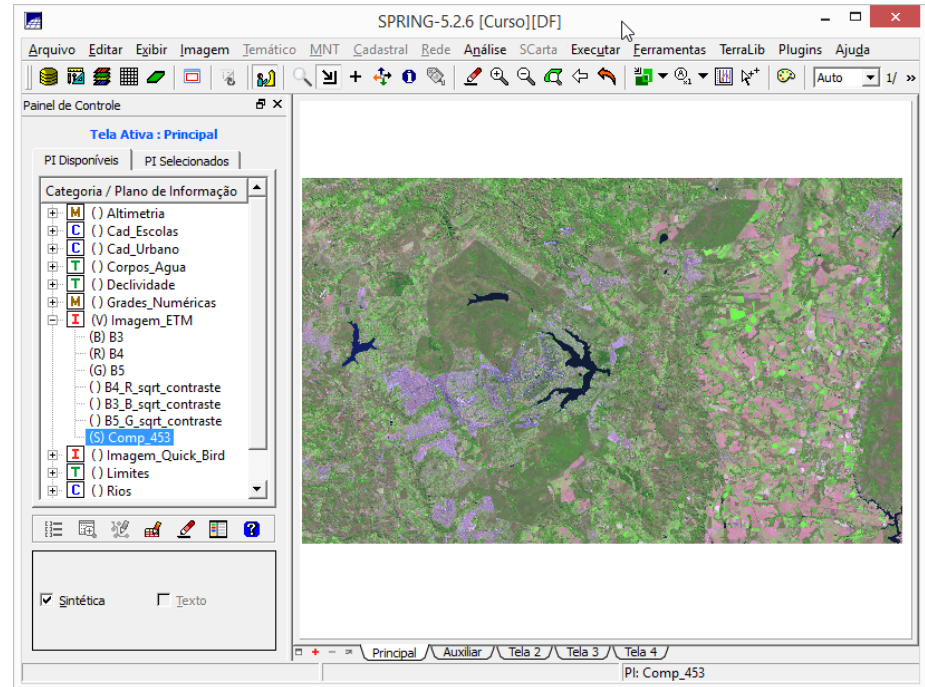
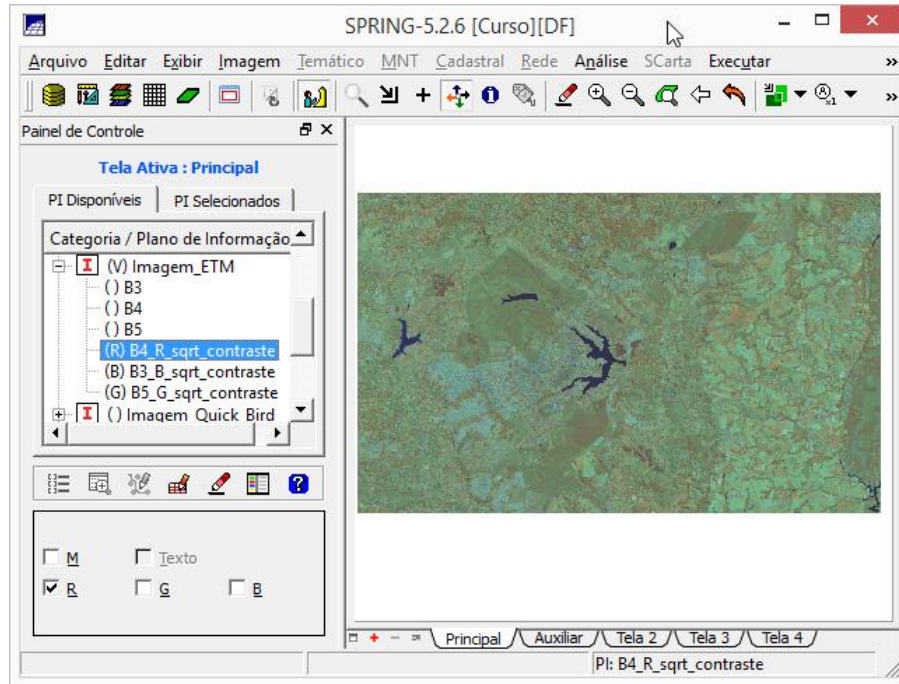
Visualizando uma composição colorida de três bandas:



Definindo um contraste para cada banda:

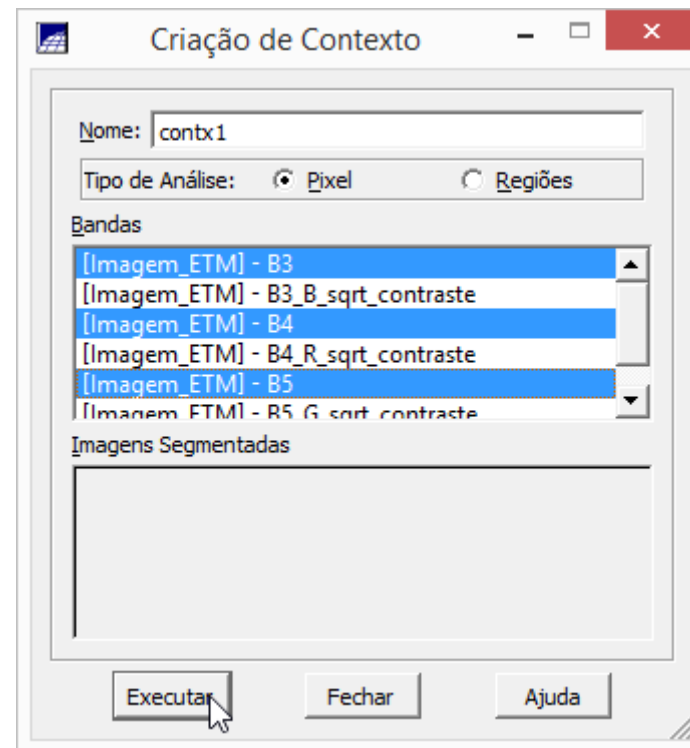
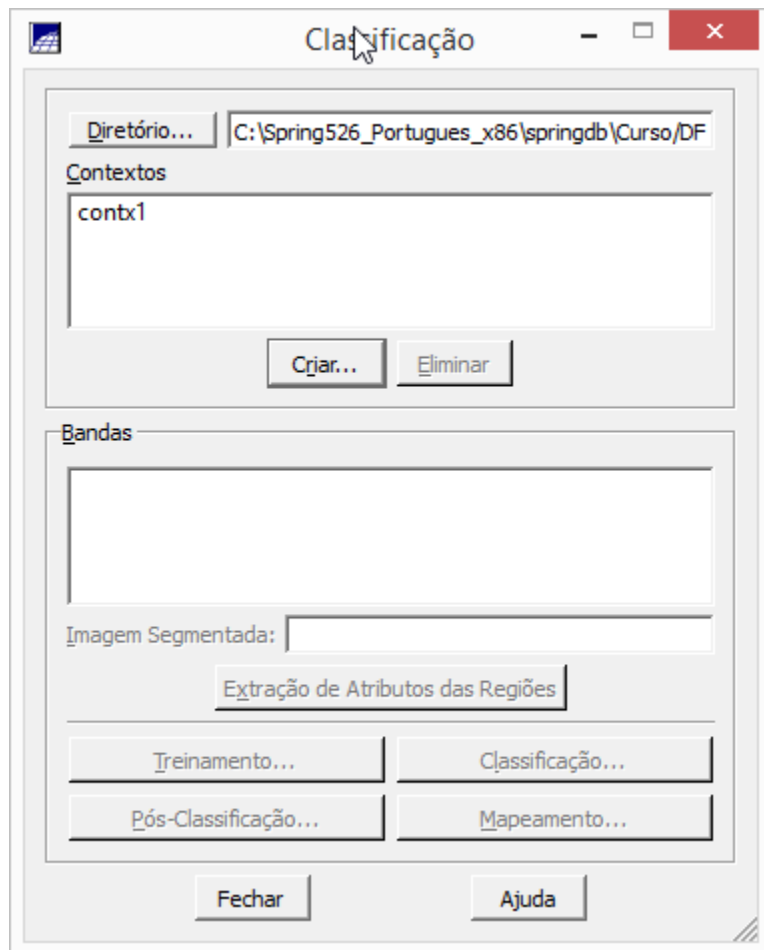


Salvando uma composição colorida de três bandas:



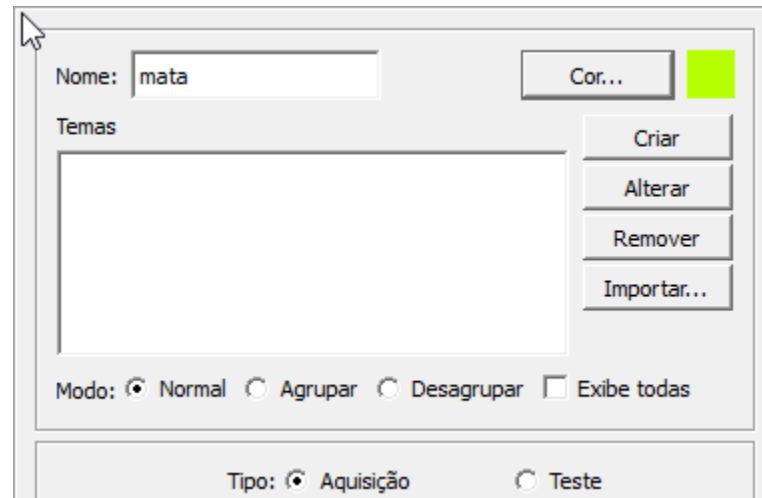
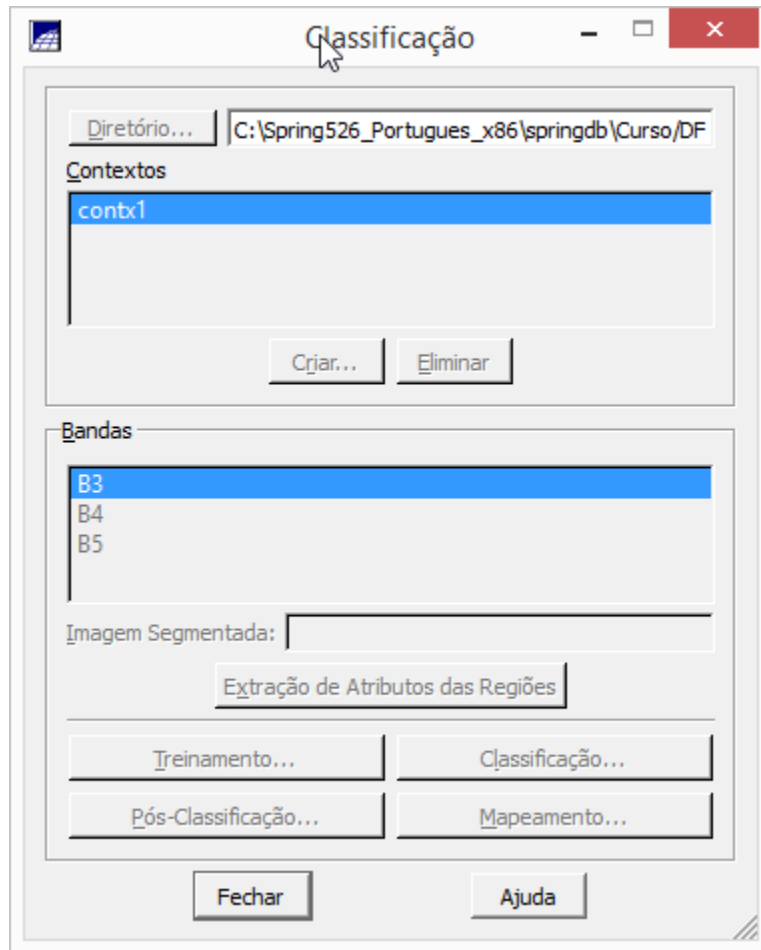
Passo 2 – Criação de um arquivo de contexto

Definindo arquivo de contexto para classificação:

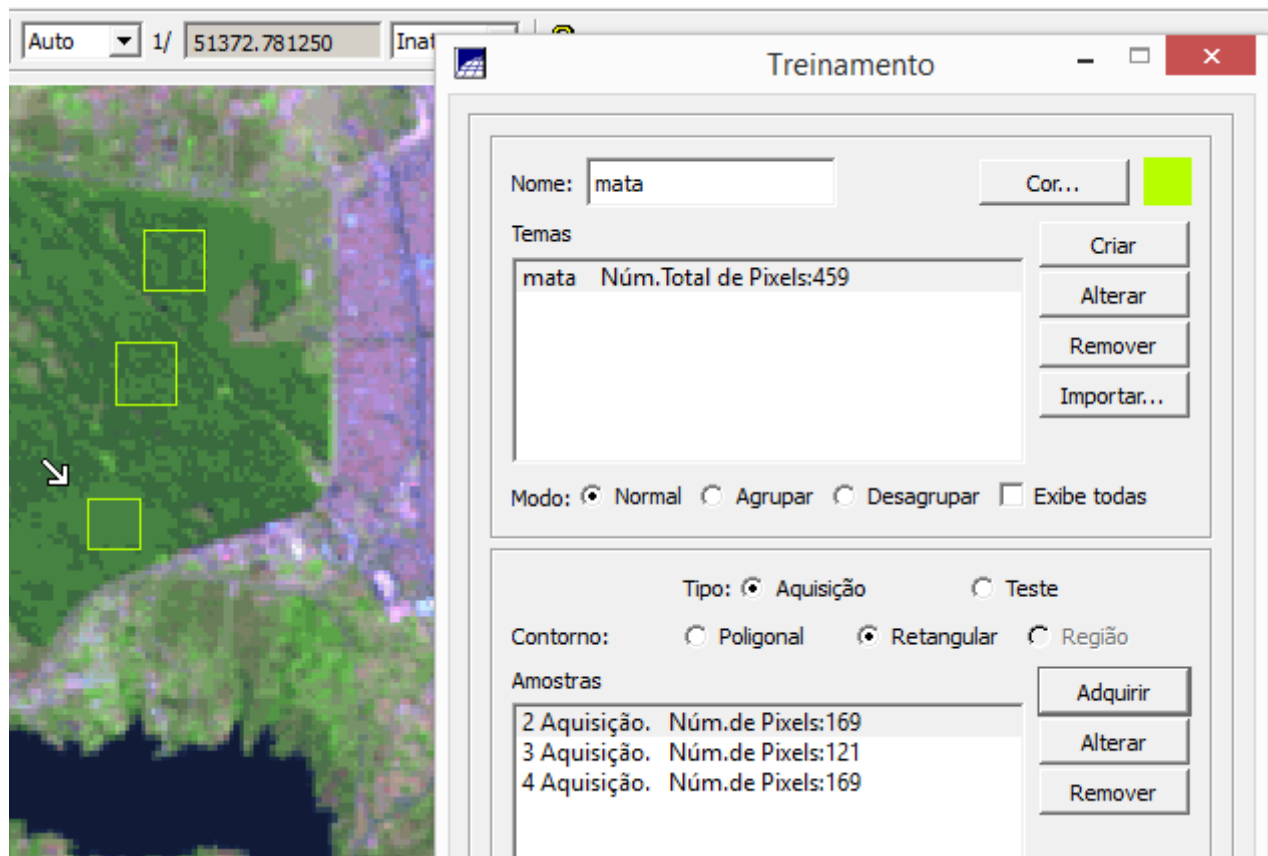


Passo 3 – Treinamento

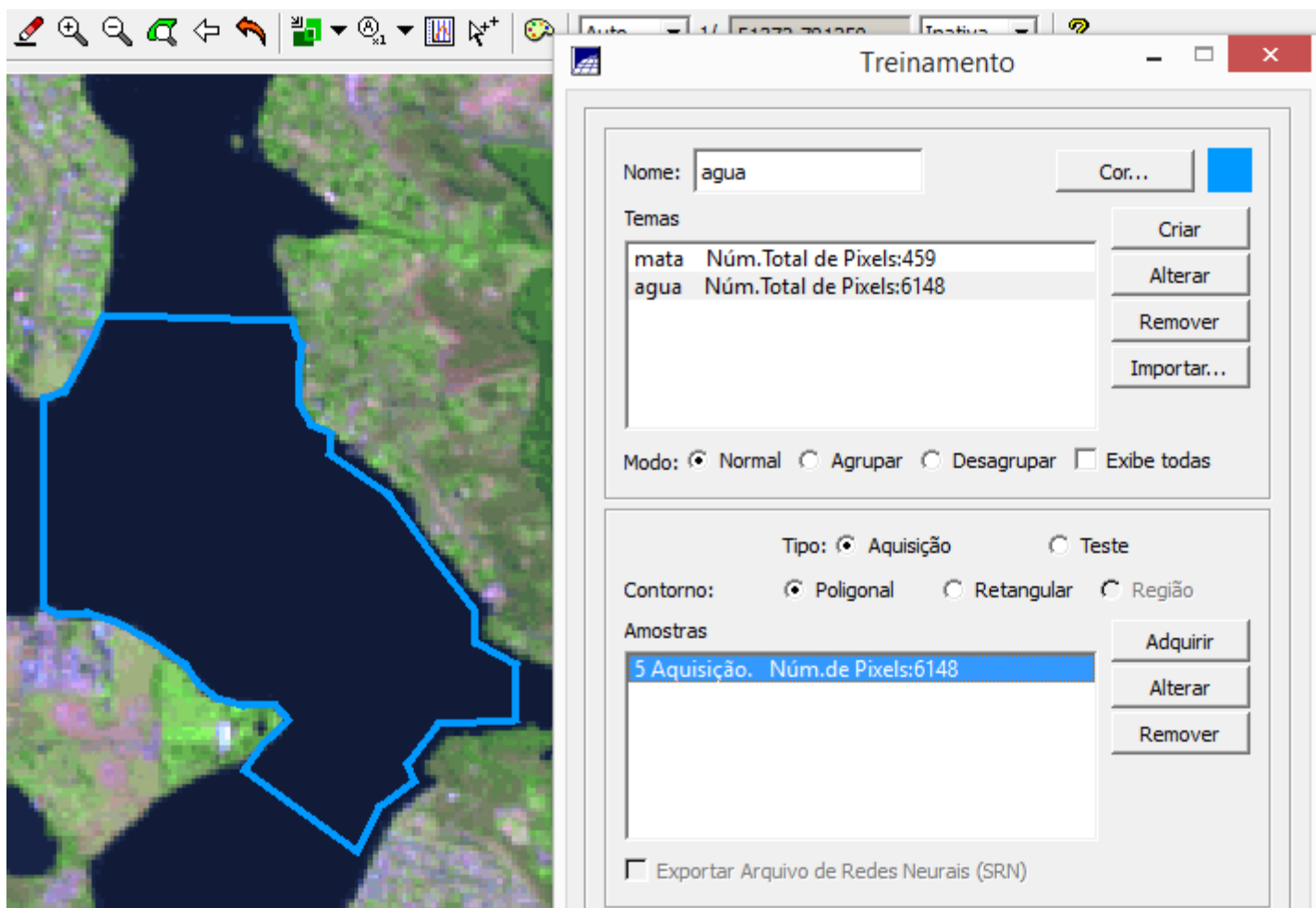
Definindo as amostras no treinamento:



Adquirindo amostras retangulares:

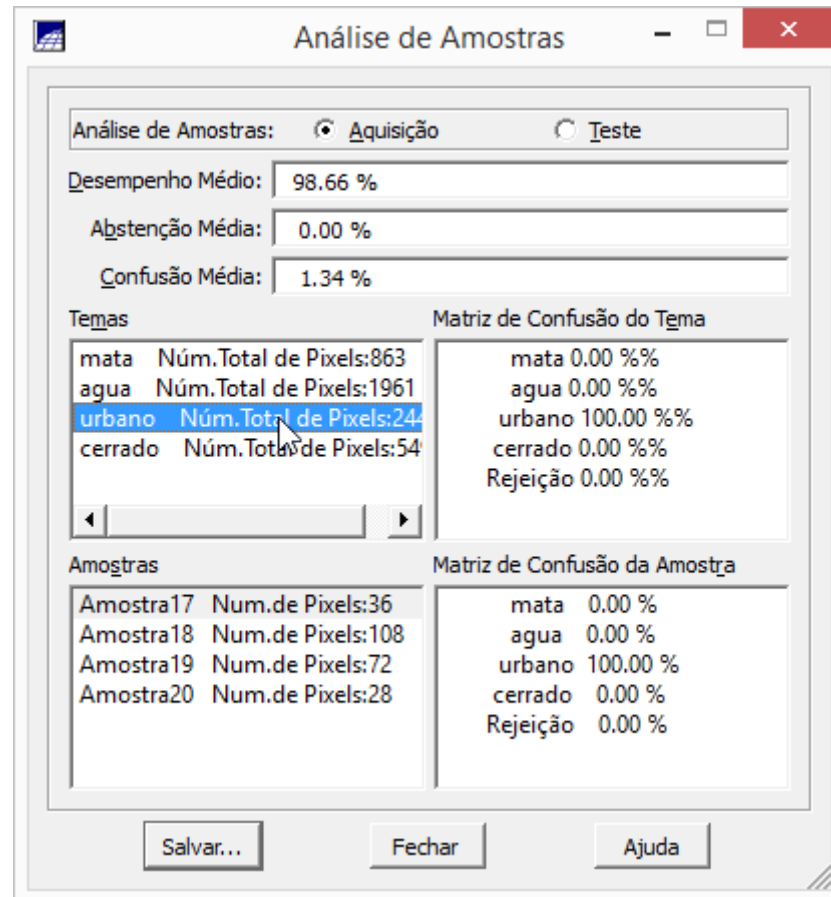
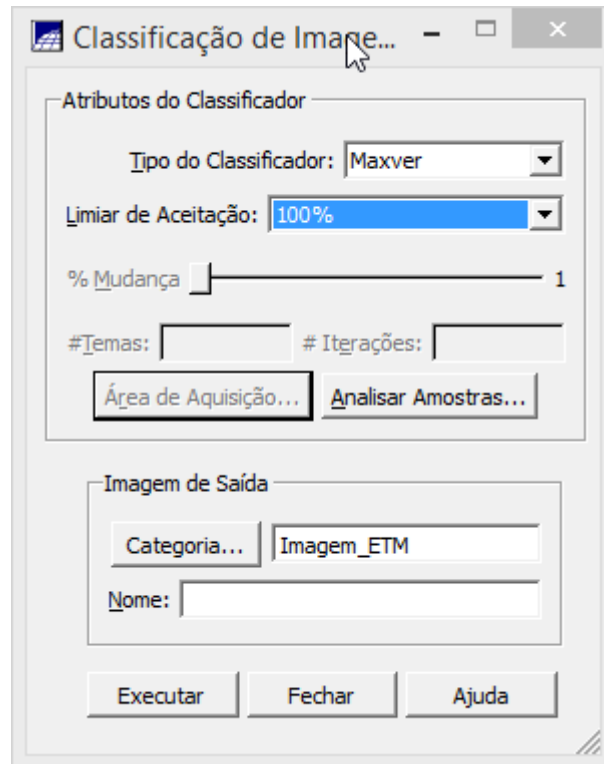


Adquirindo amostras poligonais:



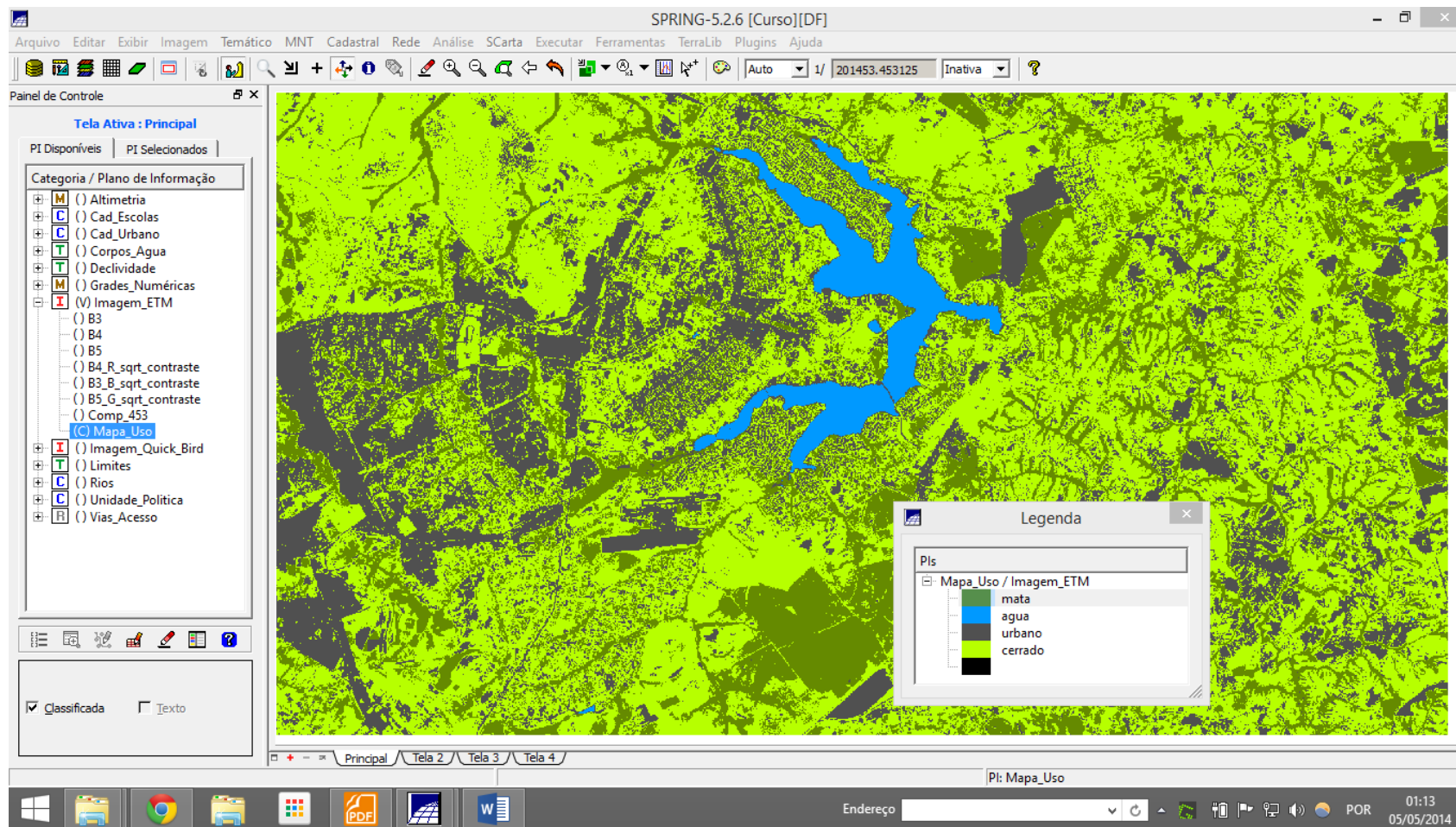
Passo 4 – Análise de amostras:

Analisando amostras e executando a Classificação da imagem:



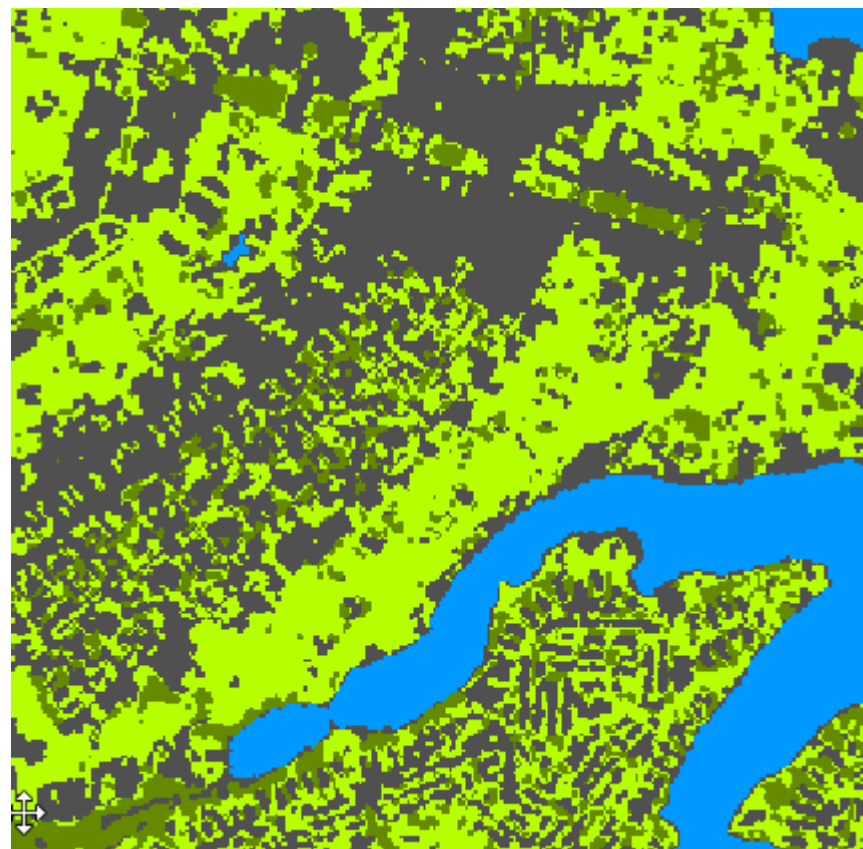
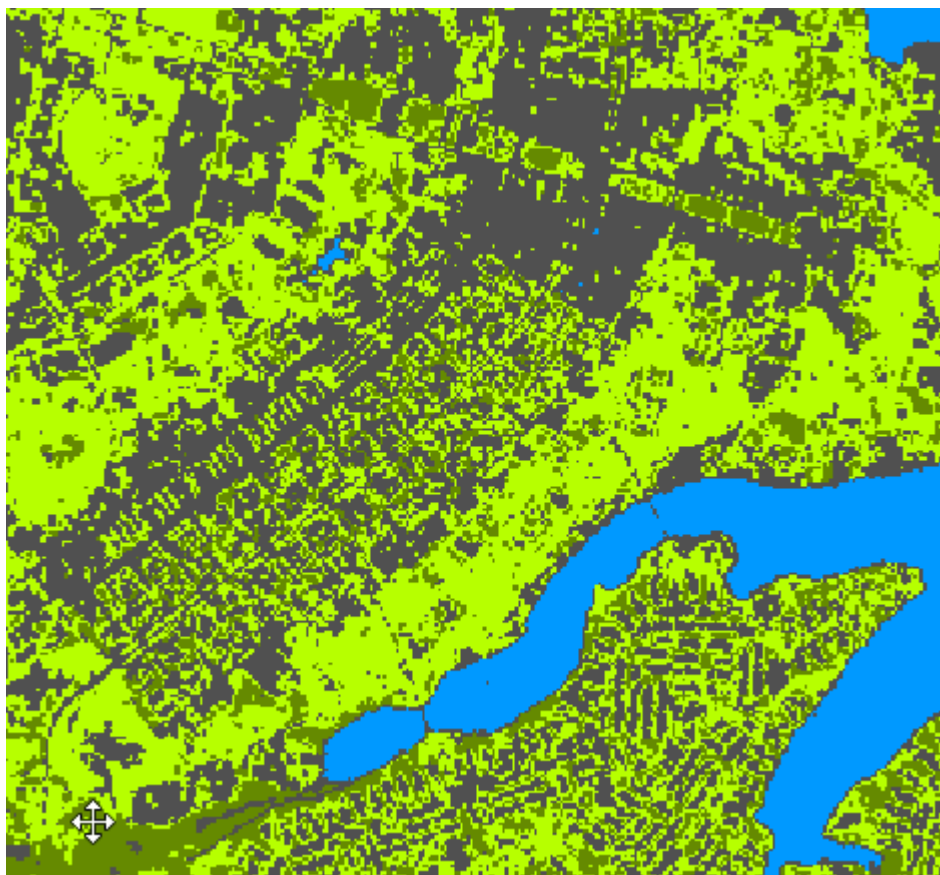
Passo 5 – Classificação da imagem

Classificando a imagem:



Passo 6 – Pós-classificação

Eliminando ruídos de classificação, ou executando uma pós-classificação:



Passo 7 – Mapeamento para modelo temático:

Mapeando temas da imagem classificada para classes de uso da Terra:

