



# Hydra II: Spatial Planning Services

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# What is HyDRA?

- Health-Care
- Decision-Support
- Resource Allocation



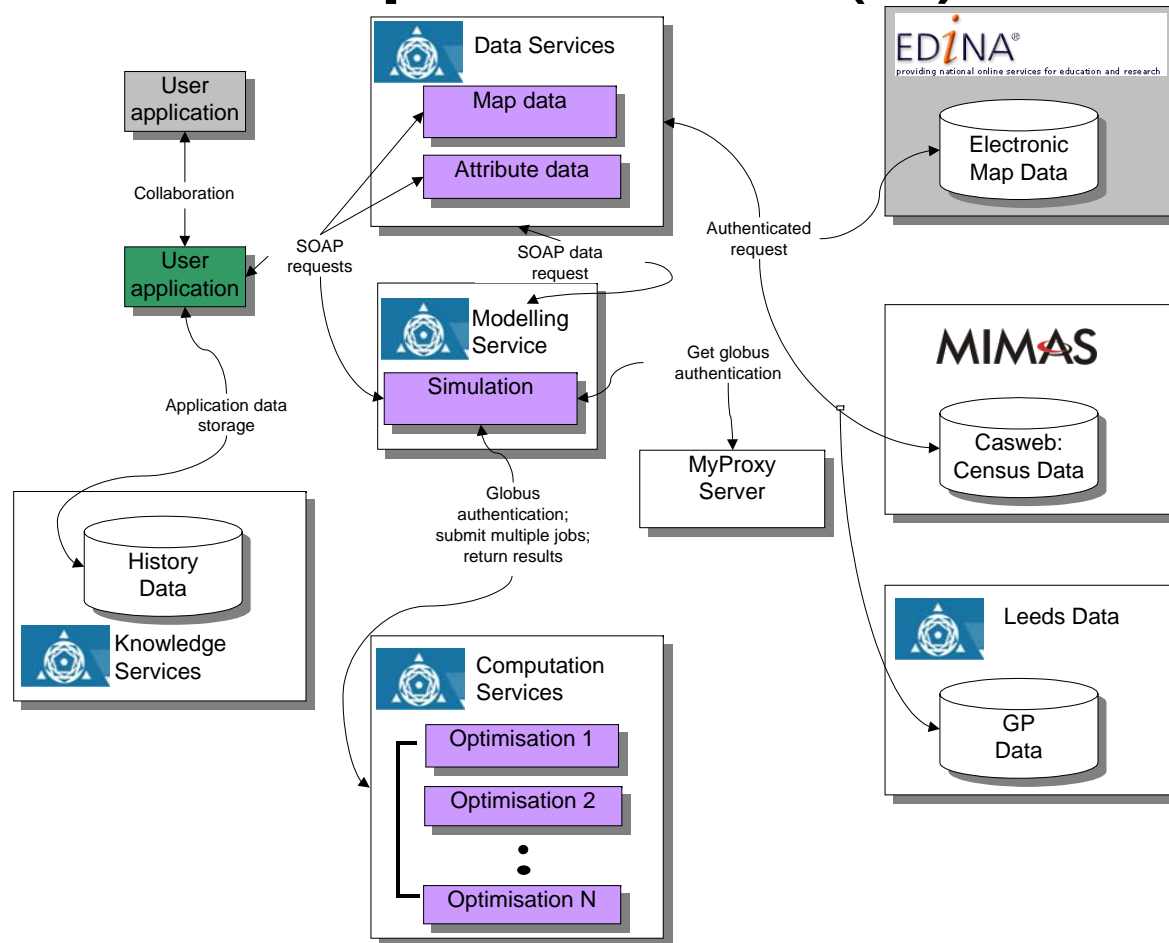
# Hydra Scenario

- A specific health care service (of which a good example would be something like colorectal cancer screening) needs to be decentralised away from hospitals and into local clinics or GP surgeries. The decision support problem is to find an ideal solution which balances patient access with high quality provision and economic efficiency.

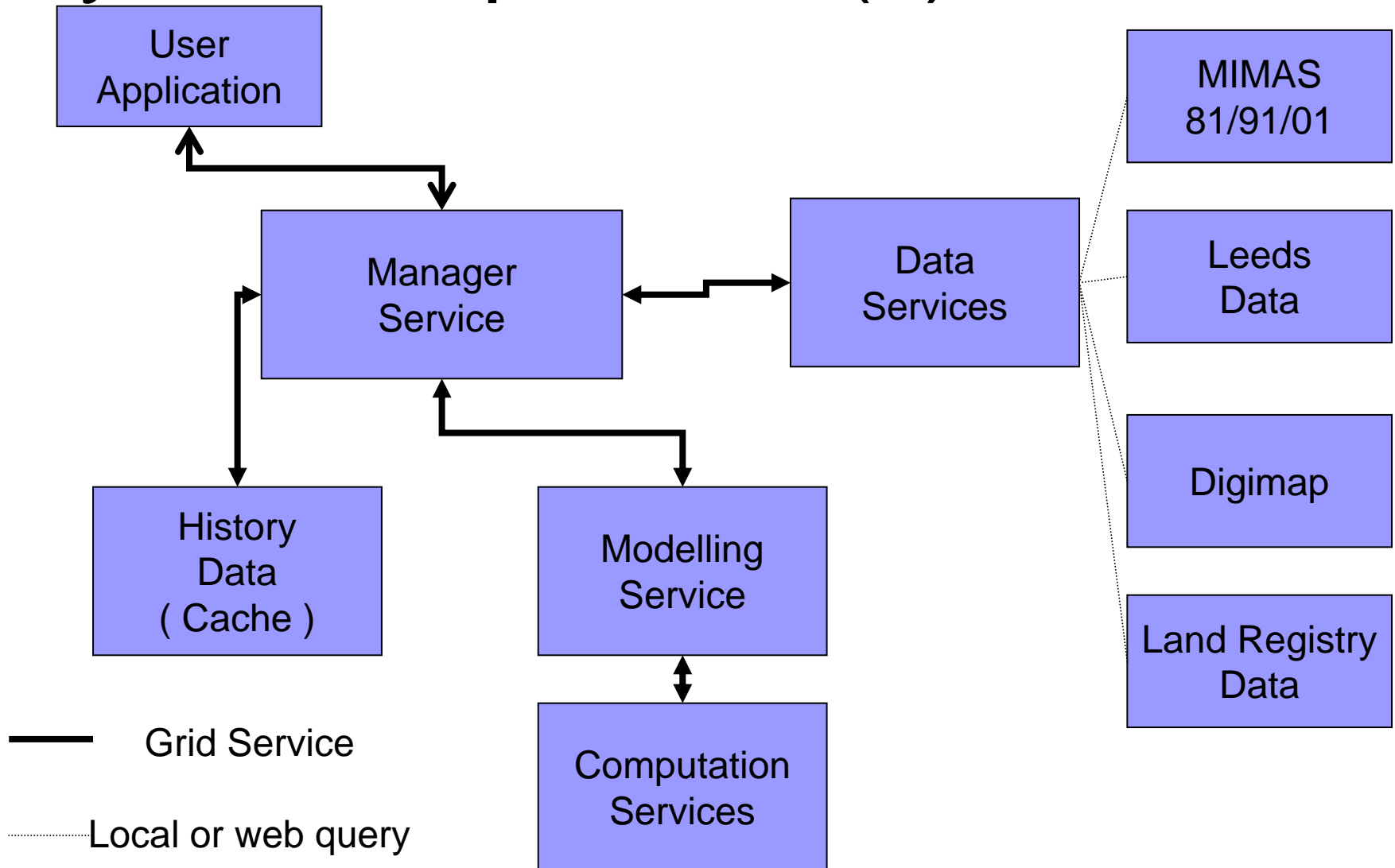
# Spatial Planning Services



# Hydra Components (1)



# Hydra Components (2)

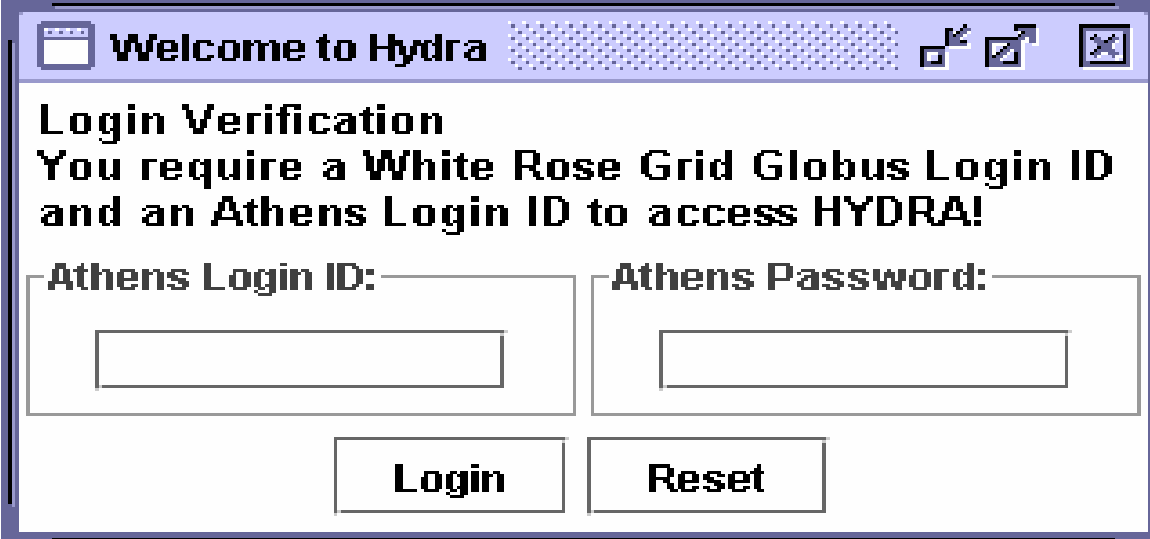




# Why Grid?

- Large Scale Data Integration
- Solve Complex Real World Problems
- Provide Collaborative Real-Time Applications

# Log-in Window



Welcome to Hydra

**Login Verification**  
You require a **White Rose Grid Globus Login ID**  
and an **Athens Login ID** to access **HYDRA!**

Athens Login ID:

Athens Password:

**Login** **Reset**

# Main Hydra window

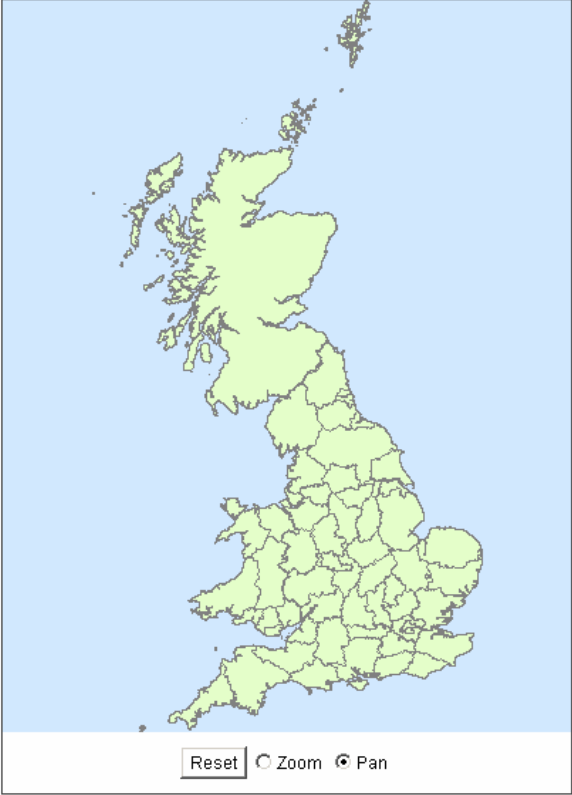
HYDRA Health Care Planning Support System | University of Leeds, 2004

Help

Service is NOT available for Scotland

1. Locate a county using the tree below or by clicking on the map:

- Counties
  - Avon
  - Bedfordshire
  - Berkshire
  - Buckinghamshire
  - Cambridgeshire
  - Cheshire
  - Cleveland
  - Clwyd
  - Cornwall and Isles Of
  - Cumbria
  - Derbyshire
  - Devon
  - Dorset
  - Durham
  - Dyfed
  - East Sussex
  - Essex
  - Gloucestershire
  - Greater Manchester
  - Gwent
  - Gwynedd
  - Hampshire
  - Hereford and Worcest
  - Hertfordshire



and the District of:

2. Choose Model Parameters:

(a) Select age ranges:

Minimum Female Age:  Maximum Female Age:

0 15 30 45 60 75 90 0 15 30 45 60 75 90

Minimum Male Age:  Maximum Male Age:

0 15 30 45 60 75 90 0 15 30 45 60 75 90

(b) Enter Minimum and Maximum number of surgeries:

Minimum:  Maximum:

3. Enter 'run' name to save current input choices:

Run Model Reset

View Results Summary

If you would like to change past model inputs, choose a past model run from list:

# County and district are chosen through a tree or by clicking on the map

The screenshot displays the HYDRA Health Care Planning Support System interface. The window title is "HYDRA Health Care Planning Support System | University of Leeds, 2004".

**Service is NOT available for Scotland**

**1. Locate a county using the tree below or by clicking on the map:**

- Lincolnshire
- Merseyside
- Mid Glamorgan
- Norfolk
- North Yorkshire
- Northamptonshire
- Northumberland
- Nottinghamshire
- Outer London
- Oxfordshire
- Powys
- Shropshire
- Somerset
- South Glamorgan
- South Yorkshire
- Staffordshire
- Suffolk
- Surrey
- Tyne and Wear
- Warwickshire
- West Glamorgan
- West Midlands
- West Sussex
- West Yorkshire**
- Wiltshire

The central map shows a geographical area with county boundaries. A red outline highlights the selected county, West Yorkshire. Below the map are controls:   Zoom  Pan

**2. Choose Model Parameters:**

**(a) Select age ranges:**

Minimum Female Age:  Maximum Female Age:   
0 15 30 45 60 75 90 0 15 30 45 60 75 90

Minimum Male Age:  Maximum Male Age:   
0 15 30 45 60 75 90 0 15 30 45 60 75 90

**(b) Enter Minimum and Maximum number of surgeries:**

Minimum:  Maximum:

**3. Enter 'run' name to save current input choices:**

If you would like to change past model inputs, choose a past model run from list:

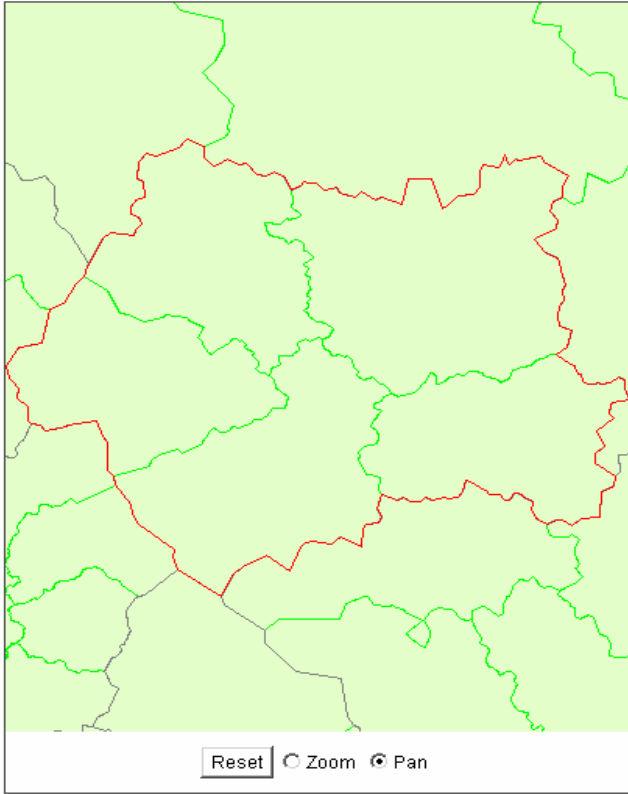
# Sliders and text boxes are used for inputs

HYDRA Health Care Planning Support System | University of Leeds, 2004

Service is NOT available for Scotland

1. Locate a county using the tree below or by clicking on the map:

- Lincolnshire
- Merseyside
- Mid Glamorgan
- Norfolk
- North Yorkshire
- Northamptonshire
- Northumberland
- Nottinghamshire
- Outer London
- Oxfordshire
- Powys
- Shropshire
- Somerset
- South Glamorgan
- South Yorkshire
- Staffordshire
- Suffolk
- Surrey
- Tyne and Wear
- Warwickshire
- West Glamorgan
- West Midlands
- West Sussex
- West Yorkshire
- Wiltshire



Reset  Zoom  Pan

You are in the County of: null  
and the District of:

2. Choose Model Parameters:  
(a) Select age ranges:

Minimum Female Age:  Maximum Female Age:

0 15 30 45 60 75 90 0 15 30 45 60 75 90

Minimum Male Age:  Maximum Male Age:

0 15 30 45 60 75 90 0 15 30 45 60 75 90

(b) Enter Minimum and Maximum number of surgeries:

Minimum:  Maximum:

3. Enter 'run' name to save current input choices:

Run Model Reset

View Results Summary

If you would like to change past model inputs,  
choose a past model run from list:

If a district is selected outside the chosen county, the county boundary will be updated in the map window

The screenshot displays the 'HYDRA Health Care Planning Support System' interface. The title bar indicates 'University of Leeds, 2004'. The main window is divided into several sections:

- Left Panel:** A tree view showing 'UK' and 'Counties'. Below it, a text box states: 'Service is NOT available for Scotland 1. Locate a county & district using the tree below or by clicking on the map:'. At the bottom of this panel are 'Reset', 'Zoom', and 'Pan' buttons.
- Map:** A map of North Yorkshire with county boundaries in green and district boundaries in red. The Harrogate district is highlighted in red. A label 'Harrogate' is placed over the district. Below the map are 'Reset', 'Zoom', and 'Pan' buttons.
- Right Panel:** Contains the following elements:
  - Text: 'You are in the County of North Yorkshire and the District of Harrogate'.
  - Section: '2. Choose Model Parameters:'
  - Sub-section: '(a) Select age ranges:'
  - Inputs: 'Minimum Female Age: 0' and 'Maximum Female Age: 0' with sliders below them. The sliders have markers at 0, 15, 30, 45, 60, 75, and 90.
  - Inputs: 'Minimum Male Age: 0' and 'Maximum Male Age: 0' with sliders below them. The sliders have markers at 0, 15, 30, 45, 60, 75, and 90.
  - Sub-section: '(b) Enter Minimum and Maximum number of surgeries:'
  - Inputs: 'Minimum: 1' and 'Maximum: 1'.
  - Section: '3. Enter 'run' name to save current input choices:'
  - Input: A text box for the run name.
  - Buttons: 'Run Model' and 'Reset'.
  - Button: 'View Results Summary'.
  - Text: 'If you would like to change past model inputs, choose a past model run from list:'
  - Input: A text box for selecting a past model run.
  - Button: 'OK'.

# Past inputs are saved for optional 'fine-tuning' another time

HYDRA Health Care Planning Support System | University of Leeds, 2004

You are in the County of: West Yorkshire and the District of: Leeds

**2. Choose Model Parameters:**  
**(a) Select age ranges:**

Minimum Female Age:  Maximum Female Age:   
0 15 30 45 60 75 90 0 15 30 45 60 75 90

Minimum Male Age:  Maximum Male Age:   
0 15 30 45 60 75 90 0 15 30 45 60 75 90

**(b) Enter Minimum and Maximum number of surgeries:**

Minimum:  Maximum:

**3. Enter 'run' name to save current input choices:**

Here are your results.

You can map their locations by selecting the number of surgeries you ran the model for from the list below.

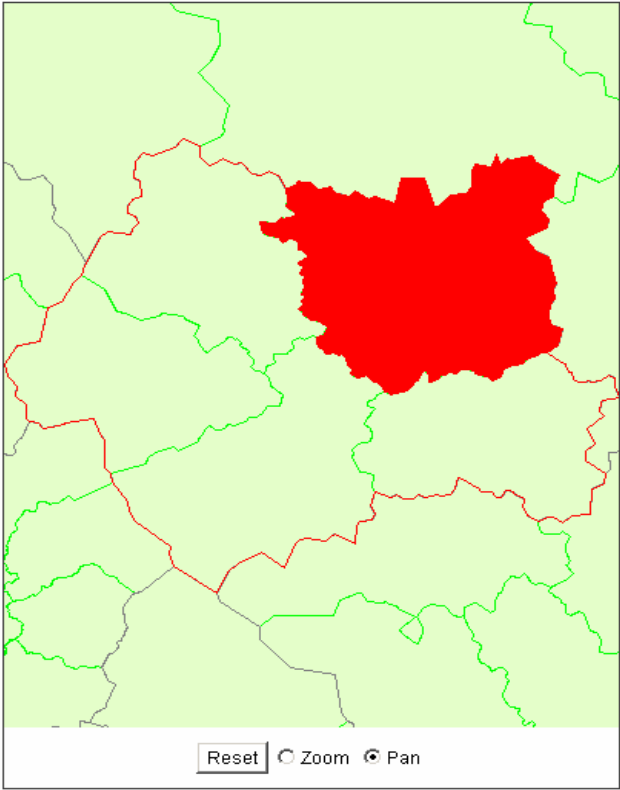
If you would like to change past model inputs, choose a past model run from list:

run1

Service is NOT available for Scotland  
1. Locate a county & district using the tree below or by clicking on the map:

- Counties
  - West Glamorgan
  - South Glamorgan
  - Powys
  - Mid Glamorgan
  - Gwynedd
  - Gwent
  - Dyfed
  - Clwyd
  - Wiltshire
  - West Sussex
  - Warwickshire
  - Surrey
  - Suffolk
  - Staffordshire
  - Somerset
  - Shropshire
  - Oxfordshire
  - Nottinghamshire
  - North Yorkshire
  - Northumberland
  - Northamptonshire
  - Norfolk
  - Lincolnshire
  - Leicestershire

Reset Zoom Pan



# Results are plotted on screen

HYDRA Health Care Planning Support System | University of Leeds, 2004

Service is NOT available for Scotland

1. Locate a county using the tree below or by clicking on the map:

- Lincolnshire
- Merseyside
- Mid Glamorgan
- Norfolk
- North Yorkshire
- Northamptonshire
- Northumberland
- Nottinghamshire
- Outer London
- Oxfordshire
- Powys
- Shropshire
- Somerset
- South Glamorgan
- South Yorkshire
- Staffordshire
- Suffolk
- Surrey
- Tyne and Wear
- Warwickshire
- West Glamorgan
- West Midlands
- West Sussex
- West Yorkshire

You are in the County of West Yorkshire and the District of Leeds

2. Choose Model Parameters:

(a) Select age ranges:

Minimum Female Age:  Maximum Female Age:

Minimum Male Age:  Maximum Male Age:

(b) Enter Minimum and Maximum number of surgeries:

Minimum:  Maximum:

3. Enter 'run' name to save current input choices:

Here are your results.

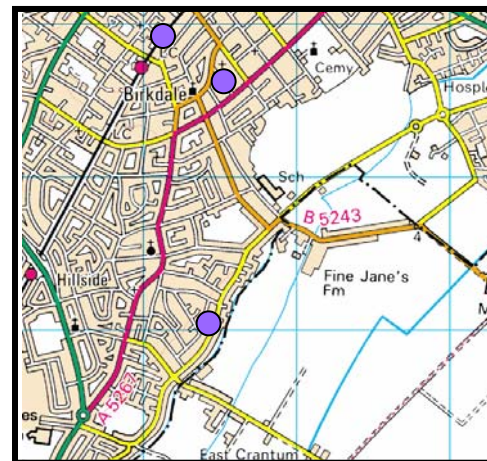
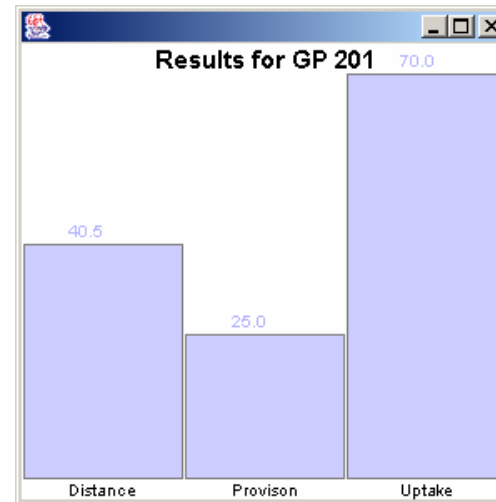
You can map their locations by selecting the number of surgeries you ran the model for from the list below.

- 1
- 2
- 3
- 4
- 5

Reset Zoom Pan

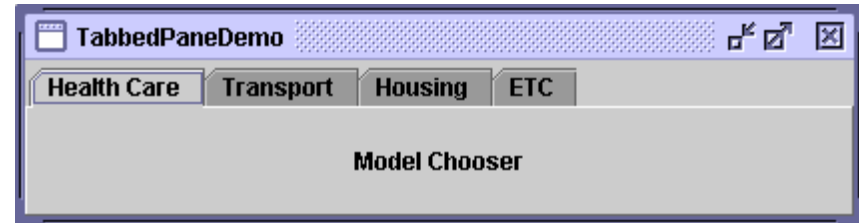
# Current Work

- Once the results are displayed on the map, double clicking on a GP marker will bring up a summary chart:
- GP location markers are shown against a Digimap image of local area shown at scale of 1:50 000
- Projections

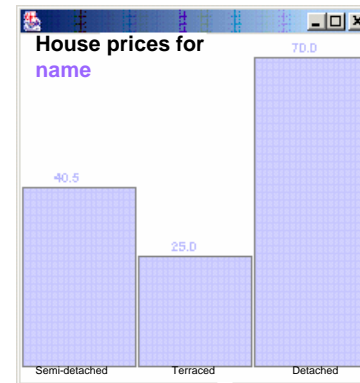


# Ideas for further development

- Use tabbed model choosers so GUI remains compact but can operate for both health care and other forms of planning
- Incorporate house prices query results as a report box or chart using mouse clicks in map viewer– for postcodes within regions/wards Average prices?



**House Price Index Query Results**  
Chosen Postcode = *blah blah*  
Average for Ward of *name* = £ ???  
Average for region = £ ???





**Hydra International** Hydra

First select a weighting from options below, then click on a UK map point to view 'like' cities

Summary Information	
Country: UK. Town/City: Manchester	Country: US. Town/City: Cincinnati. Population: 364040. Affluence: 30371
Country: Norway. Town/City: Bergen. Population: 237430. Affluence: 271300	Country: France. Town/City: Calais. Population: 125381. Affluence: 10

OK

Select weighting: 0.5 Reset  Zoom  Pan

# Next Steps

