Exercise 1

- #CONTOUR creates contour lines from an input raster data set
    - Provides raster grid of elevation values as input to CONTOUR in order to produce lines showing contours of terrain
    - IDRISI GIS Analysis -> Surface analysis -> Feature Extraction -> CONTOUR
- DEM = digital elevation model
- Terrset Explorer -> right click a layer -> add layer
    - Adds a layer to that image
- Composer window -> Layer properties -> Properties
    - Displays metadata
- Layer: basic geographic theme consisting of a set of similar features
- Display launcher
    - Symbol File shows which different ways to display the layer
    - Palette file does the same
- Vector layers
    - Points, lines, polygons
    - All based on points
    - Point layers contain only points
    - Line layers contain points connected by lines
    - Polygon layers consist of lines whose ends are joined to create an areal boundary
    - Describe features in space
    - Vector layers not coded with row and column values
- Raster layers
    - Fine matric of cells commonly called pixels stored as matrix of numeric values
    - Represented as dense grid of varying coloured rectangles
    - Blanket coverage of space
    - Each raster cell quantifies something about space at one location
    - Every cell described
- Legends and autoscaling
    - If layer contains only positive values 0-255 and is byte/integer type
        - Terrset interprets cell values as symbol codes
    - If data type integer and has more than 256 data values, or if data type is real
        - Assigns cells to symbols using autoscaling
- Saturation:
    - Layer prop. -> display parameters
    - When Display Min increased from actual min, all cell values lower than display ,om are assigned lowest palette entry and vice versa for Highest Palette entry
    - Number of classes affects legend e.g. 256 classes gives more of a gradient, whereas 16 classes gives categories/less legend groupings
- Histogram: shows distribution of values
    - File -> Display -> #HISTO

- #HILLSHADE
    - IDRISI GIS Analysis -> Surface Analysis -> Topographic Variables -> HILLSHADE
    - HILLSHADE: creates hillshade from digital elevation model
- Blend: blends the colour information of the selected layer 50/50 with that of the assemblage of visible elements blow it in the map composition
    - Composer -> Blend
    - Vector layers cannot be blended but can affect visual look in blends of rasters
    - Add layer -> Advanced palette/symbol selection tab
        - Gives extra options
- Transparency: makes the layer transparent where there are no values
    - Composer -> transparency
- Composites and analygraphs
    - Colour composite image: creates a composite by combining 3 raster layers which have been assigned red, green, or blue additives
    - Any set of raster layers can be combined into a colour composite
    - Satellite sensors measure variety of spectral bands (diff colour ranges)

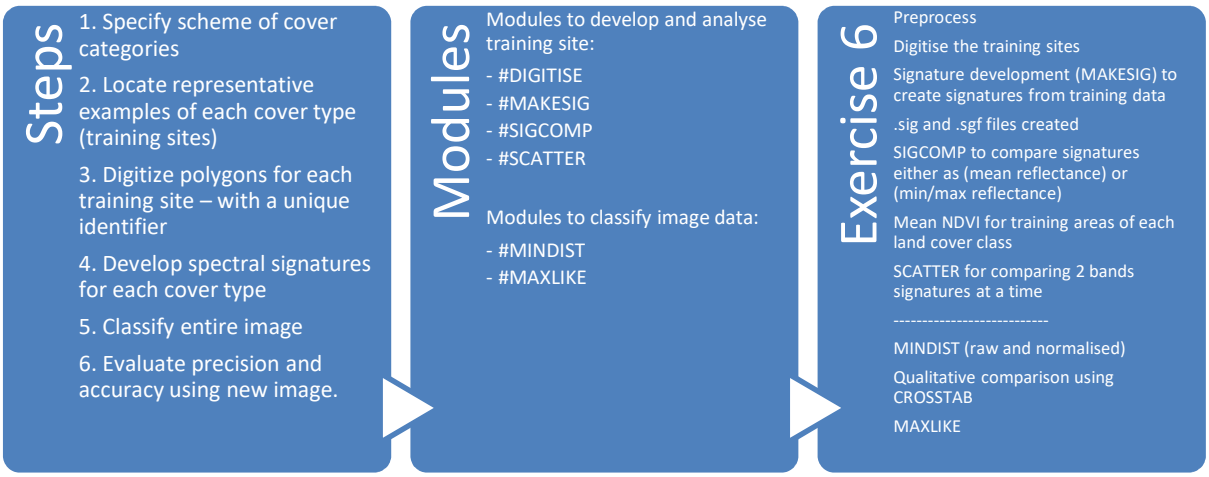
Table: Spectral bands and ground res. of Landsat Thematic mapper and Enhanced Thematic Mapper image data.

Band number	Wavelength interval	Spectral response	Resolution (mm)
1	0.45 – 0.52	Blue-green	30
2	0.52 – 0.6	Green	30
3	0.63 – 0.69	Red	30
4	0.76 – 0.9	Near IR	30
5	1.55 – 1.75	Mid IR	30
7	2.08 – 2.35	Mid IR	30

Table: Examples of colour composite images.

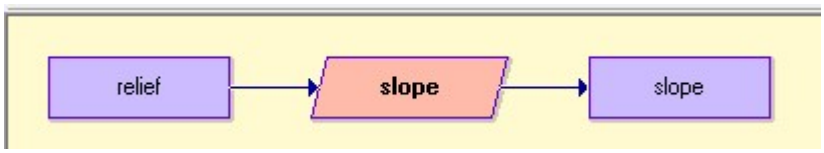
R	G	B	Notes
Red (B3)	Green (B2)	Blue (B1)	*True colour composite* – Should appear similar to real life. Useful for visualizing aquatic systems, remote sensing of urban areas.
NIR (B4)	Red (B3)	Green (B2)	*Colour infrared composite* – Widely used for vegetation (shades of red). Herbaceous veg. such as lawns, golf courses appear bright red. Forests, shrubs appear duller. Coniferous forest appears dark red.
MIR1 (B5)	NIR (B4)	Green (B2)	*Near natural composite* – Greater penetration of atmospheric haze/smoke (no blue band). Useful for sensing of wetlands, agricultural areas, geology, fires. MIR2, NIR, G or MIR2, MIR1, R also make near natural composites
NIR (B4)	MIR1 (B5)	Red (B3)	Useful for clearly delineating aquatic-terrestrial boundaries and indicating variation in moisture status of soils and vegetation. Vegetation appears as brown, green, orange etc. because of vegetation type and condition.

Q8 – Supervised classification

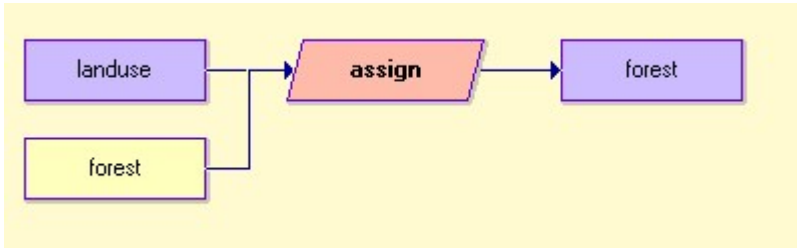


Q10 – Macro Modeller

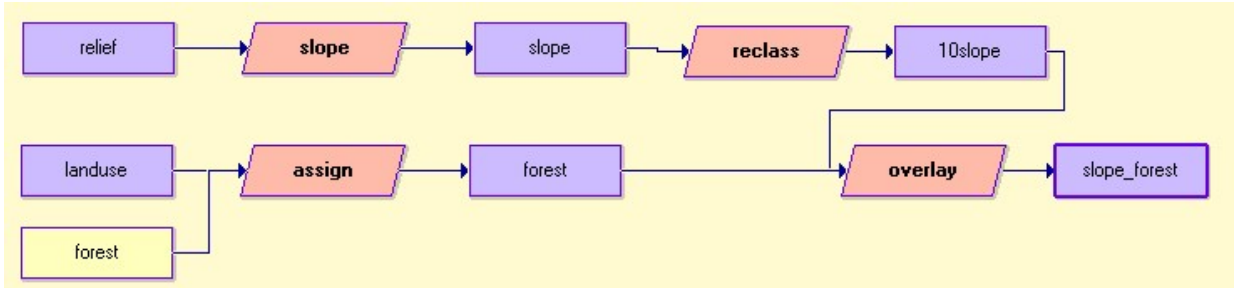
- Create slope from DEM –



- Uses ASSIGN to isolate a landuse from a vegetation image –



- Boolean image for locations that meet certain slope and where landuse is one type –



- Outputs result as tabular file of areas