

FBJigsaw is a powerful jigsaw image maker application, with similar features to the famous Photoshop software but it is free with complete source code in Delphi language. Delphi 5 and above can be used to compile its source code and add additional features if desired. With this in addition to creating a very complex jigsaw image you can also create special and mentally challenging Jigsaw puzzles also, which will be described later. Additionally you can easily write any transparent text, with transparency control anywhere on the image.

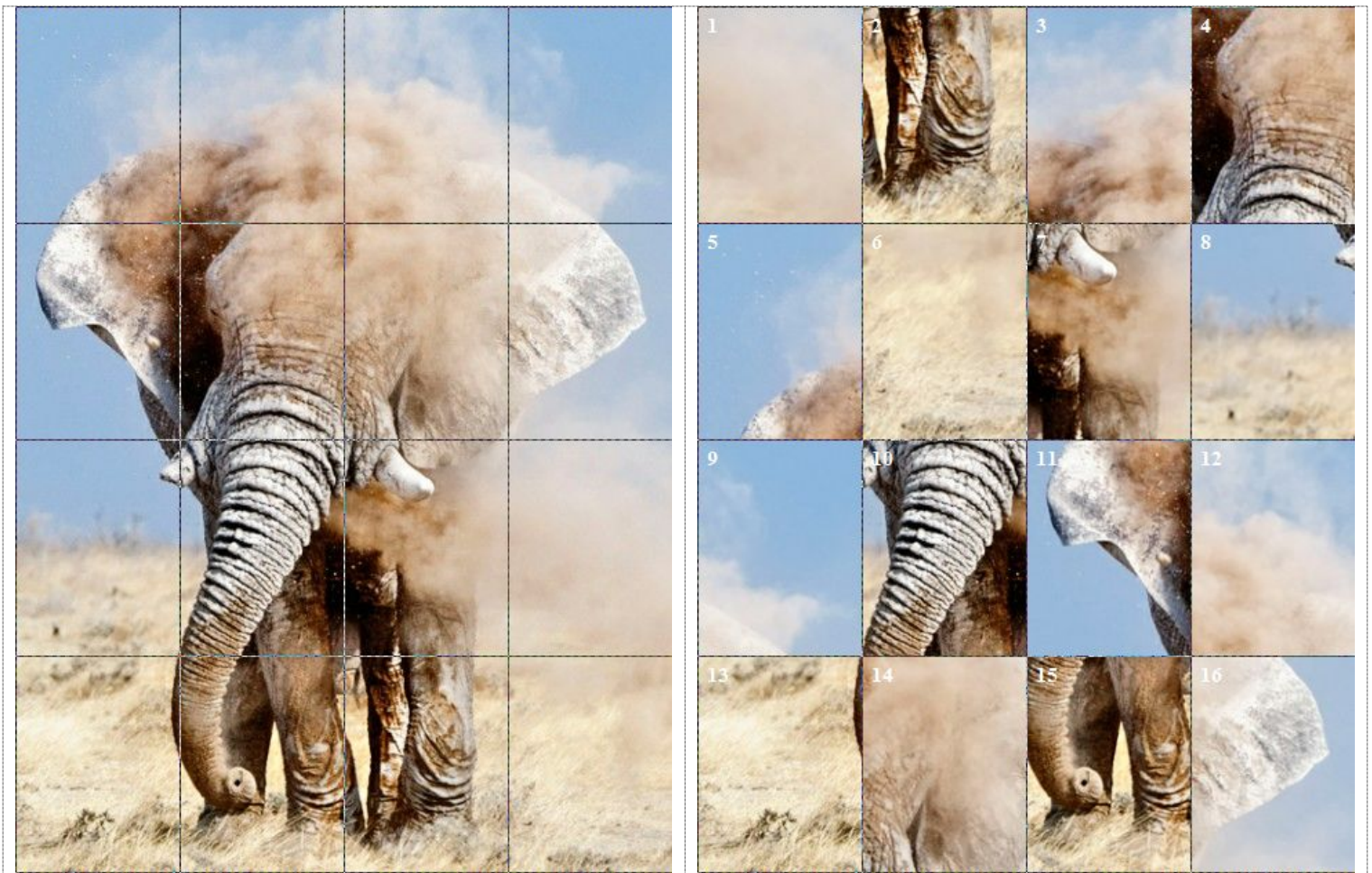
Basically with this software you can select(crop) any rectangular region of any image and easily copy to another part of the image. Therefore you can achieve a very complex rectangular Jigsaw effect with ease, and fast and accurately. From the main menu select JigSaw and then click on Exchange Arbitrary Blocks . Most graphics application cropping a rectangular region you click the mouse and hold it and let the mouse key up. In this all the cropping is done by 2 consecutive left mouse clicks. No need to hold the mouse key down. At first you will see a focus square to better show the borders of the possible crop rectangle. After the 1st mouse click the crop rectangle will be resized also.

For freestyle jigsaw there are 2 modes of making a jigsaw picture. Block Exchange and Block copy mode. After the 2nd click as you move the mouse the cropped rectangle will be copied dynamically to the new are. The 3rd click will finalize this action and now you can try to select another rectangle. In the Exchange mode as you move the mouse you will notice the original area is being replaced by by the content of current rectangle. But in copy block mode the content of original rectangle will not be changed. However after the 2nd click the content of current block will be lost.

Therefore in Exchange mode if you crop the eye of person and move it to the other eye, after 3rd click you will see the 2 eyes have been exchanged. But in Copy mode both eyes will become identical. With block mode you can copy a person eye and put it on its forehead, giving that person 3 eyes monster looking person. But in exchange mode the content of forehead will replace the eye. In the free mode with using mouse may be difficult to accurately draw the crop rectangle. To overcome this problem you can use the 4 arrow keys instead of the mouse to move it pixel by pixel accurately to any desired located.

If you want to create and accurate Jigsaw image, it is preferred that you divide the image into predefined rows and columns. To do that click on setup and a new form will popup that will allow you to divide the image into arbitrary rows and columns(maximum 9 rows and columns , 81 maximum cells). Now you can easily Exchange any 2 cells. The first click you click on the center of the cell to be exchanged and 2nd click near the center of the destination block. When you divide an image into equal size cells, you can use the randomization from Jigsaw menu to scatter the blocks in arbitrary locations. If the image is too large select File ---> Shrink image to reduce the image to the desired size. Image reduction is done by pixel averaging instead of normal pixel reduction method, which will preserve more details when image is shrunken.

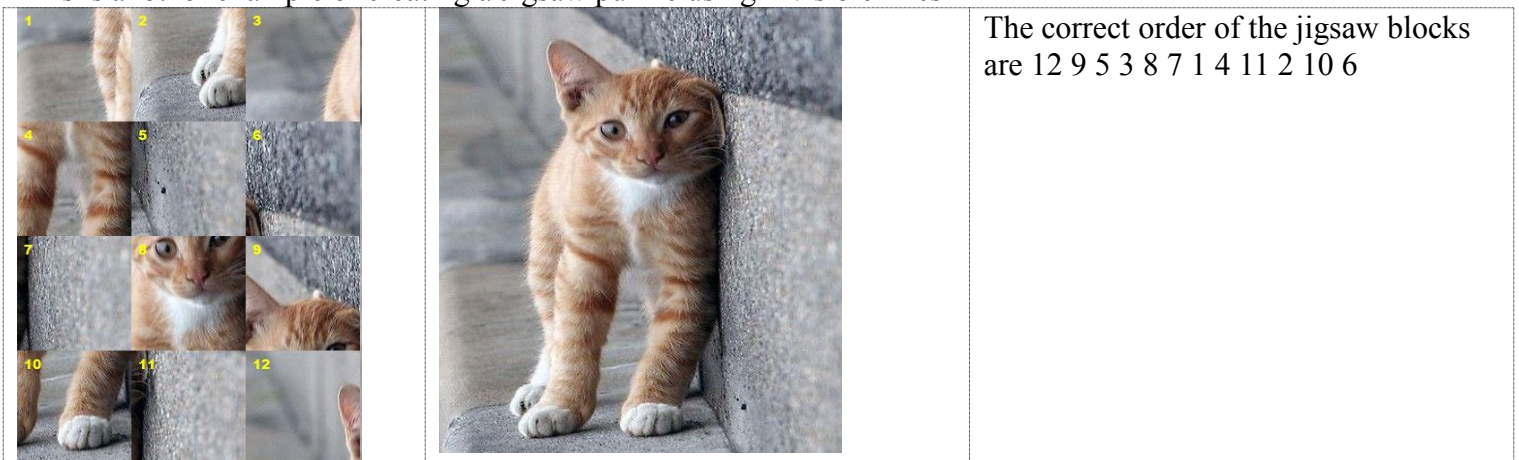
Here is an example of a Jigsaw puzzle



When you divide an image into equal number of cells, you can now create special Jigsaw puzzles for printing and publishing. This is the procedure for making a mentally challenging Jigsaw puzzle. After Click setup you divide the image into number of cells and columns you want. Then click on Randomize Jigsaw Blocks from Jigsaw menu. If you like you can further rearrange the blocks in case 2 blocks are happened to be adjacent to each other, Next you click on "write block numbers " from Jigsaw menu. Now you will notice cell numbers will be shown on the top left corner of each cell. Now the challenge is the correct sequential order of the blocks. You can always see the Jigsaw puzzle solution by clicking on "Show correct block orders" from Jigsaw menu.

The correct order of blocks for above puzzle is 5 3 12 9 11 4 14 16 8 10 7 1 13 15 2 6

This is another example of creating a Jigsaw puzzle using invisible lines



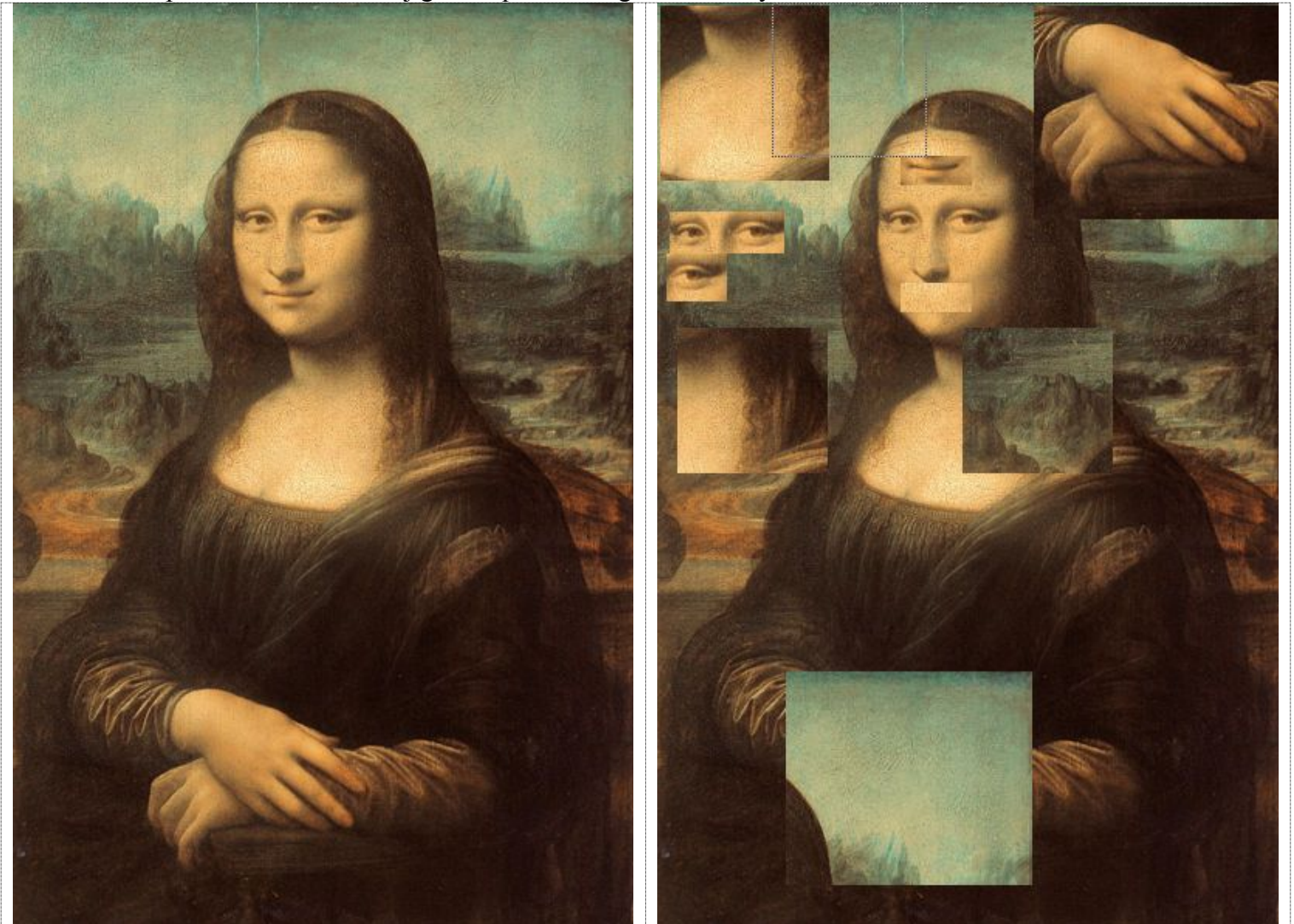
The correct order of the jigsaw blocks are 12 9 5 3 8 7 1 4 11 2 10 6

This is another jigsaw puzzle of a tiger with grid lines being enabled



By clicking on show correct block orders you will see the answer to the right order of tiger puzzle blocks is 4 19 9 5 13 6 12 1 7 22 23 14 25 15 11 8 24 17 3 18 2 20 16 10 21

**Mona Lisa** picture is broken into jigsaw squares using the arbitrary block sizes



This software in addition to image Jigsaw abilities, it can write transparent text message anywhere on the image also. Transparency can be controlled by **mouse wheel** or by entering a number in the transparency edit box.

Another example of jigsaw puzzles are text message jigsaw puzzle like this message about Albert Einstein. How long will take you to decipher this short passage about this famous scientist ?

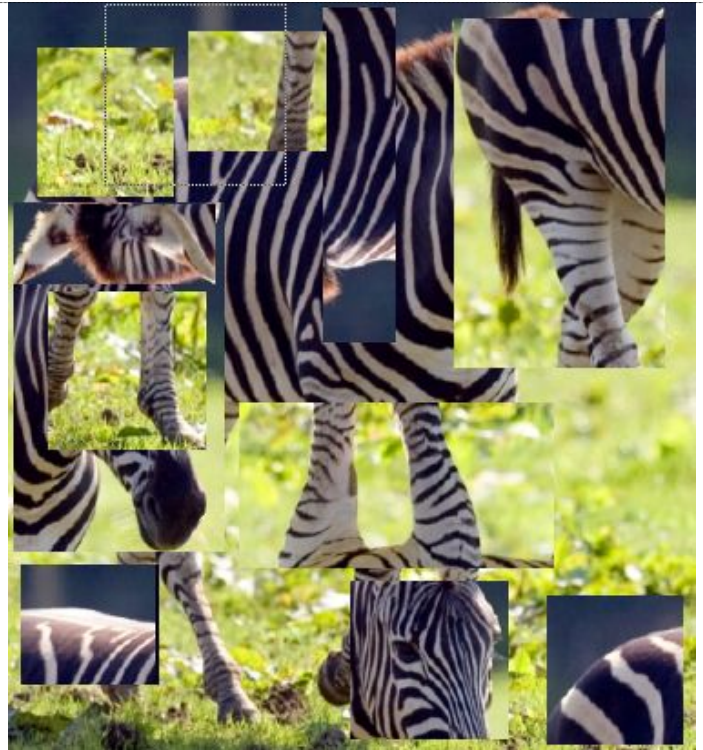
ts were i	dom	I & Cie, a	rrent.	y moved t	Albert Einstein was born in Ulm, in the Kingdom of Württemberg in the German Empire, on 14 March 1879.[5] His parents were Hermann Einstein, a salesman and engineer, and Pauline Koch. In 1880, the family moved to Munich, where Einstein's father and his uncle Jakob founded Elektrotechnische Fabrik J. Einstein & Cie, a company that manufactured electrical equipment based on direct current.
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ufacture	ta were	based on	which	4 March	Einstei
his parer	1880.	Albert E	ment		that mar
and engi	where	man Emp	direct cu	e Cie	Einstein'
the King		1879.[5]	instein wa	the famil	Ulm, in
emberg in	Einstei	salesman	ire, on 1	le Jakob	of Württ
Einstein	Ind electri		Einstein	Elektr	1870.[5]
Koch. Ind	to Munic	father an		Elektr	erman
		EL		company	Pauline

This is an example of watermarking on image



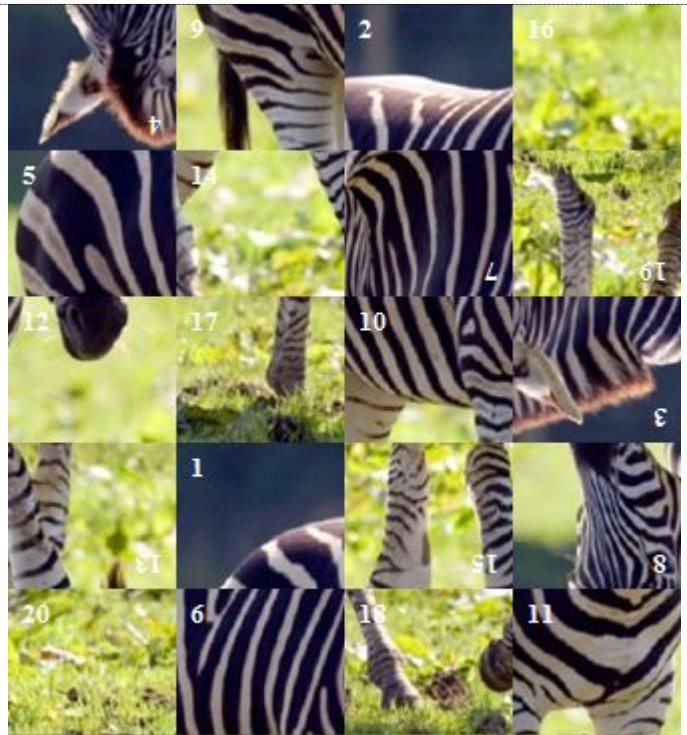
ESC key can be used at anytime to cancel the current action

In this example a zebra image is made into 3 different jigsaw images that also uses 180 deg cell rotation



Each row or column can be easily shifted left or right

Each block can be rotate(turned upside down)



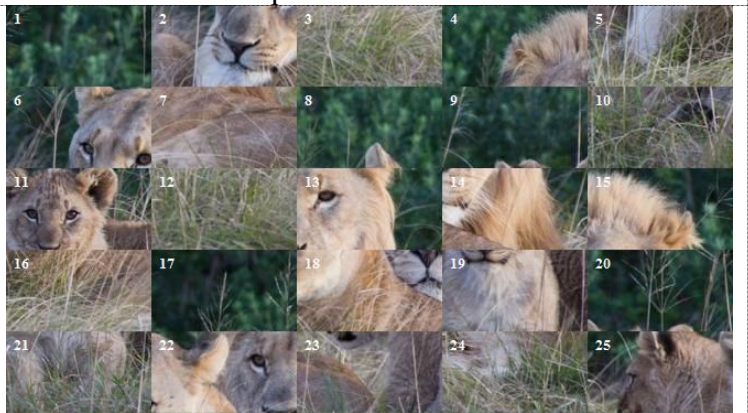


A bicycle image divided into 4 rows and 2<sup>nd</sup> row is rotated

An example of detecting number of animals

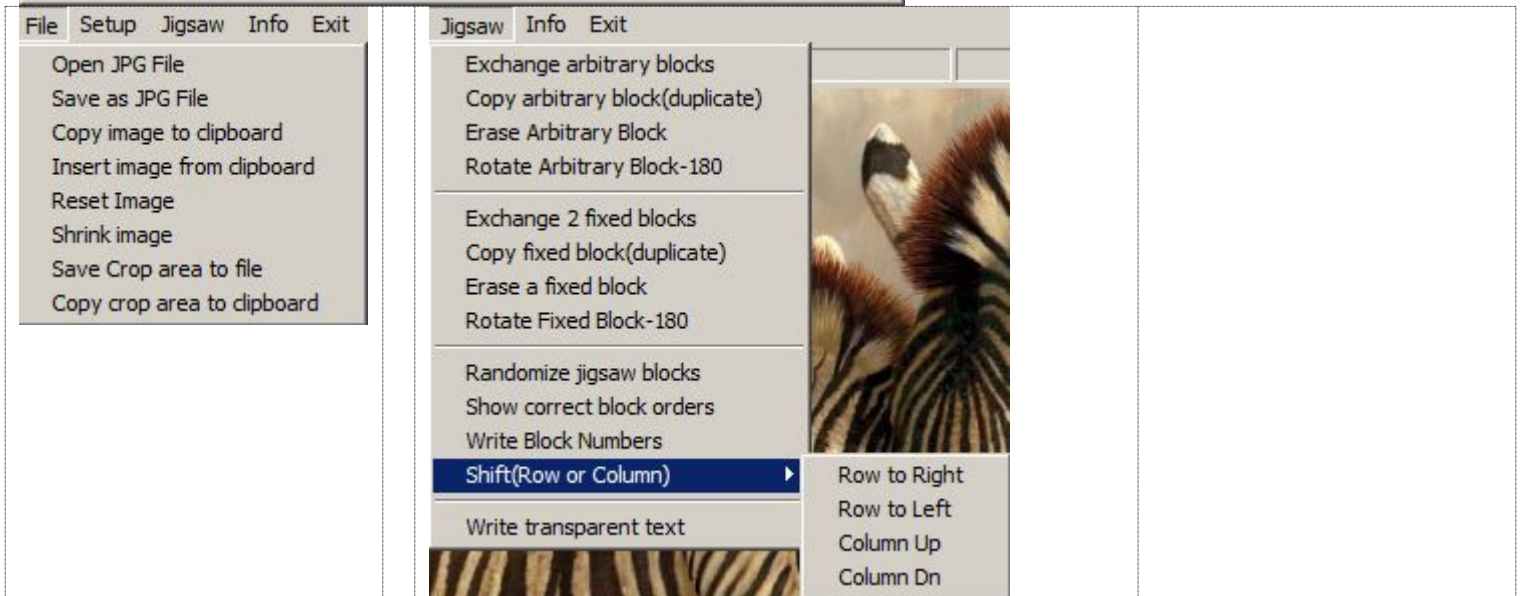
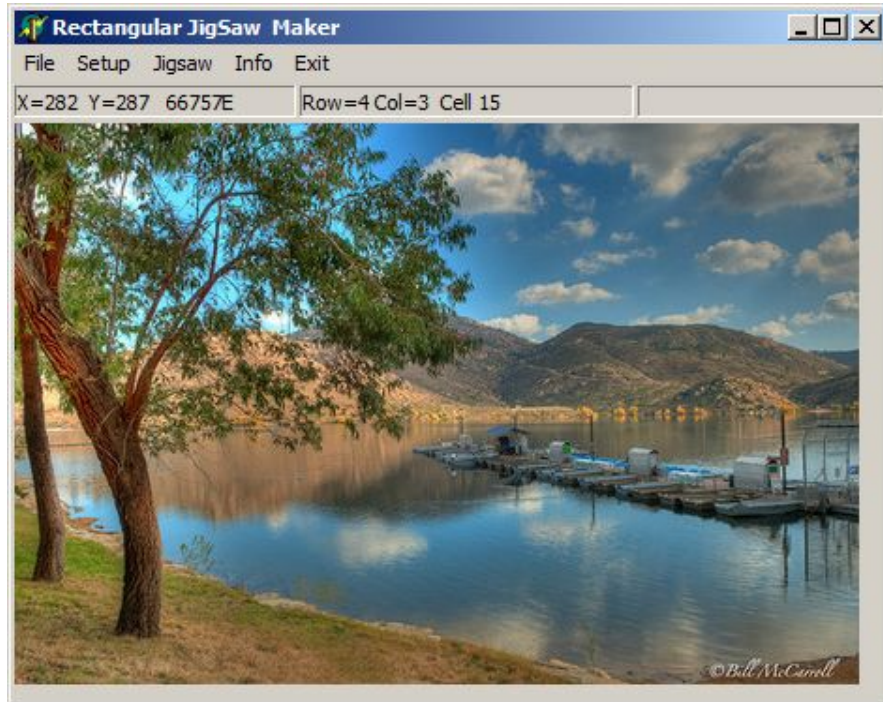


How many cheetahs are in this jigsaw puzzle, what is the correct sequential order of blocks ?



Invisible grid lines are used. How many lions in this family ?

To better understand this software lets look at its menu actions in **File** and **Jigsaw**  
This is a the screenshot of a typical nature scene



**File menu** - All is very clear, perhaps Reset Image needs some explanation.

When a file is opened its original content is saved in a local bitmap . **Reset Image** will restore that image so you dont have to read it again from hard disk.

**Jigsaw Menu** - Has all the various jigsaw actions that this software can support. As it was mentioned 2 modes of Jigsaw actions are supported. Variable Jigsaw rectangles and Fixed size Jigsaw rectangles. The first 4 actions are for variable(arbitrary) block size actions. Block rotation is implemented for rectangular blocks, which turns the block upside down. Later for square size blocks rotation by 90 and 270 degree will soon be implemented. The next 4 actions are for Fixed size Jigsaw rectangle that will give you precise and accurate block dimensions . The 3rd group in this menu contains actions that you need to do when fixed block mode is enabled . *Randomize jigsaw blocks* is for building special Jigsaw puzzles that was mentioned above. Show correct block numbers is the solution to the jigsaw puzzle. Each row or column can be shift rotated 1 cell at a time only if grid lines are enabled.

**Write transparent text** - As mentioned above for writing transparent message or notes on your favorite pictures with least amount of image distortion

If you have questions you can visit my Facebook page [www.facebook.com/motahed](http://www.facebook.com/motahed)