

Look up the built-in functions and the use of them

```
import media
```

```
dir(media)
```

```
['Color', 'DEFAULT_FONT', 'IMAGE_FORMATS', 'Image', 'ImageDraw', 'ImageFont',  
'PIC_INITIALIZED', 'Picture', '__builtins__', '__doc__', '__file__', '__name__', '__package__',  
'add_line', 'add_oval', 'add_oval_filled', 'add_polygon', 'add_polygon_filled', 'add_rect',  
'add_rect_filled', 'add_text', 'aliceblue', 'antiquewhite', 'aqua', 'aquamarine', 'azure', 'beige', 'bisque',  
'black', 'blanchedalmond', 'blue', 'blueviolet', 'brown', 'burlywood', 'cadetblue', 'chartreuse',  
'chocolate', 'choose_color', 'choose_file', 'choose_folder', 'choose_save_filename', 'close',  
'close_inspect', 'color', 'copy', 'coral', 'cornflowerblue', 'cornsilk', 'create_color', 'create_image',  
'create_picture', 'crimson', 'crop', 'crop_picture', 'cyan', 'darkblue', 'darkcyan', 'darken',  
'darkgoldenrod', 'darkgray', 'darkgreen', 'darkkhaki', 'darkmagenta', 'darkolivegreen', 'darkorange',  
'darkorchid', 'darkred', 'darksalmon', 'darkseagreen', 'darkslateblue', 'darkslategray', 'darkturquoise',  
'darkviolet', 'deeppink',  
, 'deepskyblue', 'dimgray', 'distance', 'dodgerblue', 'firebrick', 'floralwhite', 'forestgreen', 'fuchsia',  
'gainsboro', 'get_blue', 'get_color', 'get_green', 'get_height', 'get_pixel', 'get_pixels', 'get_red',  
'get_short_path', 'get_width', 'get_x', 'get_y', 'ghostwhite', 'gold', 'goldenrod', 'gray', 'green',  
'greenyellow', 'honeydew', 'hotpink', 'indianred', 'indigo', 'init_picture', 'inspect', 'ivory', 'khaki',  
'lavender', 'lavenderblush', 'lawngreen', 'lemonchiffon', 'lightblue', 'lightcoral', 'lightcyan', 'lighten',  
'lightgoldenrodyellow', 'lightgreen', 'lightgrey', 'lightpink', 'lightsalmon', 'lightseagreen',  
'lightskyblue', 'lightslategray', 'lightsteelblue', 'lightyellow', 'lime', 'limegreen', 'linen', 'load_image',  
'load_picture', 'magenta', 'maroon', 'math', 'mediumaquamarine', 'mediumblue', 'mediumorchid',  
'mediumpurple', 'mediumseagreen', 'mediumslateblue', 'mediumspringgreen', 'mediumturquoise',  
'mediumvioletred', 'midnightblue', 'mintcream', 'mistyrose', 'moccasin', 'mw',  
'navajowhite', 'navy', 'oldlace', 'olive', 'olivedrab', 'orange', 'orangered', 'orchid', 'os',  
'palegoldenrod', 'palegreen', 'paleturquoise', 'palevioletred', 'papayawhip', 'peachpuff', 'peru', 'pink',  
'pixel', 'plum', 'powderblue', 'purple', 'red', 'rosybrown', 'royalblue', 'saddlebrown', 'salmon',  
'sandybrown', 'save', 'save_as', 'say', 'seagreen', 'seashell', 'set_blue', 'set_color', 'set_green',  
'set_red', 'show', 'show_external', 'sienna', 'silver', 'skyblue', 'slateblue', 'slategray', 'snow',  
'springgreen', 'steelblue', 'tan', 'teal', 'thistle', 'tomato', 'turquoise', 'update', 'violet', 'wheat', 'white',  
'whitesmoke', 'yellow', 'yellowgreen']
```

```
help(abs)
```

Help on built-in function abs in module `__builtin__`:

```
abs(...)
```

```
abs(number) -> number
```

Return the absolute value of the argument.

```
help(media.get_green)
```

Help on function get_green in module media:

`get_green(pix)`

Return the green value of Pixel `pix`.

`help(media)`

Help on module `media`:

NAME

`media`

FILE

`c:\python27\lib\site-packages\pygraphics\media.py`

DESCRIPTION

The `media` module. This contains global convenience functions for manipulating PyGraphics objects, and imports all the supporting modules fully.

Pictures currently support the following formats: JPEG, BMP, GIF, TIFF, IM, MSP, PNG, PCX, and PPM.

Sounds support is self-contained in `sound_media.py`, and must be imported separately.

FUNCTIONS

`add_line(pic, x1, y1, x2, y2, col)`

Draw a line of Color `col` from `(x1, y1)` to `(x2, y2)` on Picture `pic`.

`add_oval(pic, x, y, w, h, col)`

Draw an empty oval of Color `col`, width `w`, and height `h` on Picture `pic`. The upper left corner of the oval is at `(x, y)`.

`add_oval_filled(pic, x, y, w, h, col)`

Draw a filled oval of Color `col`, width `w`, and height `h` on Picture `pic`. The upper left corner of the oval is at `(x, y)`.

`add_polygon(pic, point_list, col)`

Draw an empty polygon of Color `col` with corners for every vertex in list `point_list` on Picture `pic`.

Note:

`point_list` is a list containing vertices `xy` coordinates (ex. `[x1,y1,x2,y2,x3,y3]`) It should contain at least three coordinate pairs.

`add_polygon_filled(pic, point_list, col)`

Draw an empty polygon of Color `col` with corners for every vertex in list `point_list` on Picture `pic`.

Note:

`point_list` is a list containing vertices xy coordinates (ex. `[x1,y1,x2,y2,x3,y3]`) It should contain at least three coordinate pairs.

`add_rect(pic, x, y, w, h, col)`

Draw an empty rectangle of Color `col`, width `w`, and height `h` on Picture `pic`. The upper left corner of the rectangle is at `(x, y)`.

`add_rect_filled(pic, x, y, w, h, col)`

Draw a filled rectangle of Color `col`, width `w`, and height `h` on Picture `pic`. The upper left corner of the rectangle is at `(x, y)`.

`add_text(pic, x, y, s, col)`

Draw str `s` in Color `col` on Picture `pic` starting at `(x, y)`.

`choose_color()`

Prompt user to pick a color. Return a RGB Color object.

`choose_file()`

Prompt user to pick a file. Return the path to that file.

`choose_folder()`

Prompt user to pick a folder. Return the path to that folder.

`choose_save_filename()`

Prompt user to pick a directory and filename. Return the path to the new file.

`close(pic)`

Close Picture `pic`'s display.

`close_inspect(obj)`

Close an open inspector window for object `obj`. Works on Sound and Picture objects.

`copy(obj)`

Return a deep copy of object `obj`. Works on Color, Sound, and Picture objects.

`create_color(r, g, b)`

Return a Color object with RGB values r, g, and b.

`create_picture(w, h, col=Color(255, 255, 255))`

Return a Picture w pixels wide and h pixels high.

Default Color col is white.

`crop = crop_picture(pic, x1, y1, x2, y2)`

Crop Picture pic so that only pixels inside the rectangular region with upper-left coordinates (x1, y1) and lower-right coordinates (x2, y2) remain. The new upper-left coordinate is (0, 0).

`crop_picture(pic, x1, y1, x2, y2)`

Crop Picture pic so that only pixels inside the rectangular region with upper-left coordinates (x1, y1) and lower-right coordinates (x2, y2) remain. The new upper-left coordinate is (0, 0).

`darken(col)`

Darken Color col by 35%.

`distance(col1, col2)`

Return the Euclidean distance between the RGB values of Color col1 and Color col2.

`get_blue(pix)`

Return the blue value of Pixel pix.

`get_color(pix)`

Return the Color object with Pixel pix's RGB values.

`get_green(pix)`

Return the green value of Pixel pix.

`get_height(pic)`

Return how many pixels high Picture pic is.

`get_pixel(pic, x, y)`

Return the Pixel object at the coordinates (x, y) in Picture pic.

`get_pixels(pic)`

Return a list of Picture pic's Pixels from top to bottom, left to right.

`get_red(pix)`

Return the red value of Pixel `pix`.

`get_width(pic)`

Return how many pixels wide Picture `pic` is.

`get_x(pix)`

Return the x coordinate of Pixel `pix`.

`get_y(pix)`

Return the y coordinate of Pixel `pix`.

`inspect(obj)`

Inspect object `obj`. Works on Sound and Picture objects.

`lighten(col)`

Lighten Color `col` by 35%.

`load_picture(filename)`

Return a Picture object from filename `filename`.

`save(obj)`

Write media.py object `obj` back to its previous file.

`save_as(obj, filename=None)`

Prompt user to pick a directory and filename then write media.py object `obj` to that filename. Requires that file format is specified in filename by extensions.

`say(text)`

Display text to the user in a GUI window.

`set_blue(pix, b)`

Set the blue value of Pixel `pix` to `b`.

`set_color(pix, col)`

Set the RGB values of Pixel `pix` to those of Color `col`.

`set_green(pix, g)`

Set the green value of Pixel `pix` to `g`.

`set_red(pix, r)`

Set the red value of Pixel `pix` to `r`.

show(pic)

Display Picture pic in separate window.

show_external(pic)

Display Picture pic in an external application. The specific application depends on the operating system.

update(pic)

Update Picture pic's display window.

DATA

DEFAULT_FONT = <ImageFont.ImageFont instance>

IMAGE_FORMATS = ['.jpg', '.jpeg', '.bmp', '.gif', '.tif', '.tiff', '.i...

PIC_INITIALIZED = False

aliceblue = Color(240, 248, 255)

antiquewhite = Color(250, 235, 215)

aqua = Color(0, 255, 255)

aquamarine = Color(127, 255, 212)

azure = Color(240, 255, 255)

beige = Color(245, 245, 220)

bisque = Color(255, 228, 196)

black = Color(0, 0, 0)

blanchedalmond = Color(255, 235, 205)

blue = Color(0, 0, 255)

blueviolet = Color(138, 43, 226)

brown = Color(165, 42, 42)

burlywood = Color(222, 184, 135)

cadetblue = Color(95, 158, 160)

chartreuse = Color(127, 255, 0)

chocolate = Color(210, 105, 30)

coral = Color(255, 127, 80)

cornflowerblue = Color(100, 149, 237)

cornsilk = Color(255, 248, 220)

crimson = Color(220, 20, 60)

cyan = Color(0, 255, 255)

darkblue = Color(0, 0, 139)

darkcyan = Color(0, 139, 139)

darkgoldenrod = Color(184, 134, 11)

darkgray = Color(169, 169, 169)

darkgreen = Color(0, 100, 0)

darkkhaki = Color(189, 183, 107)

darkmagenta = Color(139, 0, 139)

darkolivegreen = Color(85, 107, 47)

darkorange = Color(255, 140, 0)

darkorchid = Color(153, 50, 204)
darkred = Color(139, 0, 0)
darksalmon = Color(233, 150, 122)
darkseagreen = Color(143, 188, 143)
darkslateblue = Color(72, 61, 139)
darkslategray = Color(47, 79, 79)
darkturquoise = Color(0, 206, 209)
darkviolet = Color(148, 0, 211)
deeppink = Color(255, 20, 147)
deepskyblue = Color(0, 191, 255)
dimgray = Color(105, 105, 105)
dodgerblue = Color(30, 144, 255)
firebrick = Color(178, 34, 34)
floralwhite = Color(255, 250, 240)
forestgreen = Color(34, 139, 34)
fuchsia = Color(255, 0, 255)
gainsboro = Color(220, 220, 220)
ghostwhite = Color(248, 248, 255)
gold = Color(255, 215, 0)
goldenrod = Color(218, 165, 32)
gray = Color(128, 128, 128)
green = Color(0, 255, 0)
greenyellow = Color(173, 255, 47)
honeydew = Color(240, 255, 240)
hotpink = Color(255, 105, 180)
indianred = Color(205, 92, 92)
indigo = Color(75, 0, 130)
ivory = Color(255, 255, 240)
khaki = Color(240, 230, 140)
lavender = Color(230, 230, 250)
lavenderblush = Color(255, 240, 245)
lawngreen = Color(124, 252, 0)
lemonchiffon = Color(255, 250, 205)
lightblue = Color(173, 216, 230)
lightcoral = Color(240, 128, 128)
lightcyan = Color(224, 255, 255)
lightgoldenrodyellow = Color(250, 250, 210)
lightgreen = Color(144, 238, 144)
lightgrey = Color(211, 211, 211)
lightpink = Color(255, 182, 193)
lightsalmon = Color(255, 160, 122)
lightseagreen = Color(32, 178, 170)
lightskyblue = Color(135, 206, 250)
lightslategray = Color(119, 136, 153)

lightsteelblue = Color(176, 196, 222)
lightyellow = Color(255, 255, 224)
lime = Color(0, 255, 0)
limegreen = Color(50, 205, 50)
linen = Color(250, 240, 230)
magenta = Color(255, 0, 255)
maroon = Color(128, 0, 0)
mediumaquamarine = Color(102, 205, 170)
mediumblue = Color(0, 0, 205)
mediumorchid = Color(186, 85, 211)
mediumpurple = Color(147, 112, 219)
mediumseagreen = Color(60, 179, 113)
mediumslateblue = Color(123, 104, 238)
mediumspringgreen = Color(0, 250, 154)
mediumturquoise = Color(72, 209, 204)
mediumvioletred = Color(199, 21, 133)
midnightblue = Color(25, 25, 112)
mintcream = Color(245, 255, 250)
mistyrose = Color(255, 228, 225)
moccasin = Color(255, 228, 181)
navajowhite = Color(255, 222, 173)
navy = Color(0, 0, 128)
oldlace = Color(253, 245, 230)
olive = Color(128, 128, 0)
olivedrab = Color(107, 142, 35)
orange = Color(255, 165, 0)
orangered = Color(255, 69, 0)
orchid = Color(218, 112, 214)
palegoldenrod = Color(238, 232, 170)
palegreen = Color(152, 251, 152)
paleturquoise = Color(175, 238, 238)
palevioletred = Color(219, 112, 147)
papayawhip = Color(255, 239, 213)
peachpuff = Color(255, 218, 185)
peru = Color(205, 133, 63)
pink = Color(255, 192, 203)
plum = Color(221, 160, 221)
powderblue = Color(176, 224, 230)
purple = Color(128, 0, 128)
red = Color(255, 0, 0)
rosybrown = Color(188, 143, 143)
royalblue = Color(65, 105, 225)
saddlebrown = Color(139, 69, 19)
salmon = Color(250, 128, 114)

sandybrown = Color(244, 164, 96)
seagreen = Color(46, 139, 87)
seashell = Color(255, 245, 238)
sienna = Color(160, 82, 45)
silver = Color(192, 192, 192)
skyblue = Color(135, 206, 235)
slateblue = Color(106, 90, 205)
slategray = Color(112, 128, 144)
snow = Color(255, 250, 250)
springgreen = Color(0, 255, 127)
steelblue = Color(70, 130, 180)
tan = Color(210, 180, 140)
teal = Color(0, 128, 128)
thistle = Color(216, 191, 216)
tomato = Color(255, 99, 71)
turquoise = Color(64, 224, 208)
violet = Color(238, 130, 238)
wheat = Color(245, 222, 179)
white = Color(255, 255, 255)
whitesmoke = Color(245, 245, 245)
yellow = Color(255, 255, 0)
yellowgreen = Color(154, 205, 50)