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    "import matplotlib.pyplot as plt\n",
    "import numpy as np\n",
    "from operator import add\n",
    "import pandas as pd\n",
    "from PIL import Image, ImageDraw, ImageFont\n",
    "import seaborn as sns\n",
    "from torch import Tensor, nn, optim\n",
    "import torch.nn.functional as F\n",
    "import torchvision.utils\n",
    "from torchvision.models import vgg\n",
```

```
"from torch.utils.data import TensorDataset, DataLoader\n",
    "import torchvision.datasets as datasets\n",
    "import torchvision.transforms as transforms\n",
    "from torchvision.transforms.functional import to_pil_image\n",
    "from tqdm.notebook import tqdm"
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    "rain_img = Image.open('WeatherImages/rain/rain20.jpg')\n",
    "shine img = Image.open('WeatherImages/shine/shine18.jpg')\n",
    "sunrise_img = Image.open('WeatherImages/sunrise/sunrise3.jpg')\n",
    "example_imgs = [cloudy_img, rain_img, shine_img, sunrise_img]\n",
    "\n",
    "w, h = example_imgs[1].size\n",
    "grid = Image.new('RGBA', size=(4*w, h))\n",
    "grid_w, grid_h = grid.size\n",
    "ls = grid_w/4  # label spacing\n",
    "\n",
    "for i, img in enumerate(example imgs):\n",
         grid.paste(img, box=(i\%4*w, i//4*h))\n",
    "\n",
    "plt.figure(figsize=(18,10))\n",
    "plt.title('Example images', fontsize=18)\n",
    "plt.imshow(grid)\n",
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    "num_rain = len(os.listdir('WeatherImages/rain/'))\n",
    "num_shine = len(os.listdir('WeatherImages/shine/'))\n",
    "num sunrise = len(os.listdir('WeatherImages/sunrise/'))\n",
    "\n",
    "# Plot distribution of classes\n",
    "def label pie(pct, allvals):\n",
         absolute = int(round(pct/100.*np.sum(allvals)))\n",
         return \"{:.1f}%\\n{:d} images\".format(pct, absolute)\n",
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    "fig = plt.figure(figsize=(6,6))\n",
    "ax = fig.add_axes([0,0,1,1])\n",
    "ax.axis('equal')\n",
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                self.func = func n",
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          def __len__(self):\n",
                return len(self.dl)\n",
       "\n",
           def __iter__(self):\n",
                batches = iter(self.dl)\n",
                for b in batches:\n",
                    yield (self.func(*b))\n",
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       "def preprocess(x, y):\n",
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