# ASHRAE - Energy Prediction III

```
from google.colab import files


uploaded = files.upload()
!mkdir -p ~/.kaggle/ && mv kaggle.json ~/.kaggle/ && chmod 600 ~/.kaggle/kaggle.json
!kaggle competitions download -c ashrae-energy-prediction
!unzip train.csv.zip
!unzip test.csv.zip
!unzip weather_test.csv.zip
!unzip weather_train.csv.zip
!unzip sample_submission.csv.zip
```

Choose Files No file chosen Upload widget is only available when the cell has been executed in

```
Saving kaggle.json to kaggle.json
Warning: Looks like you're using an outdated API Version, please consider updating (serv
Downloading train.csv.zip to /content
 94% 113M/120M [00:01<00:00, 44.2MB/s]
100% 120M/120M [00:01<00:00, 71.1MB/s]
Downloading weather_test.csv.zip to /content
  0% 0.00/2.53M [00:00<?, ?B/s]
100% 2.53M/2.53M [00:00<00:00, 83.8MB/s]
Downloading sample_submission.csv.zip to /content
100% 88.4M/88.4M [00:02<00:00, 37.3MB/s]

Downloading building_metadata.csv to /content
  0% 0.00/44.5k [00:00<?, ?B/s]
100% 44.5k/44.5k [00:00<00:00, 44.2MB/s]
Downloading weather_train.csv.zip to /content
  0% 0.00/1.27M [00:00<?, ?B/s]
100% 1.27M/1.27M [00:00<00:00, 179MB/s]
Downloading test.csv.zip to /content
 91% 152M/167M [00:02<00:00, 34.7MB/s]
100% 167M/167M [00:03<00:00, 57.9MB/s]
Archive:  train.csv.zip
  inflating: train.csv
Archive:  test.csv.zip
  inflating: test.csv
Archive:  weather_test.csv.zip
  inflating: weather_test.csv
Archive:  weather_train.csv.zip
  inflating: weather_train.csv
Archive:  sample_submission.csv.zip
  inflating: sample_submission.csv
```

```
# upload external building data
building_data = files.upload()
```

Choose Files No file chosen Upload widget is only available when the cell has been executed in

```
import numpy as np
import pandas as pd
from sklearn.preprocessing import LabelEncoder,StandardScaler,OneHotEncoder
from xgboost import XGBRegressor
from sklearn.ensemble import GradientBoostingRegressor
from sklearn.model_selection import train_test_split,GridSearchCV
import gc,warnings,datetime
from sklearn.linear_model import LinearRegression, Ridge,Lasso,ElasticNet
from sklearn.metrics import mean_squared_error
from math import sqrt
import seaborn as sns
import matplotlib.pyplot as plt
#Create lightgbm model
import lightgbm as lgb
from sklearn.model_selection import KFold, StratifiedKFold
from tqdm import tqdm
warnings.filterwarnings("ignore")


#Load dataframes
train = pd.read_csv('train.csv')
test = pd.read_csv('test.csv')
# building = pd.read_csv('building_metadata.csv')
building = pd.read_csv('building_metadata_external.csv') # using external data with 2 new col
weather_train = pd.read_csv('weather_train.csv')
weather_test = pd.read_csv('weather_test.csv')

#Separe row_ids for submission file
row_ids = test['row_id']
building.drop(['leed'],inplace=True,axis=1)
test.drop('row_id',inplace=True,axis=1)


'''Function to reduce the DF size'''
# source: https://www.kaggle.com/kernels/scriptcontent/3684066/download

def reduce_mem_usage(df):
    """ iterate through all the columns of a dataframe and modify the data type
        to reduce memory usage.
    """
    start_mem = df.memory_usage().sum() / 1024**2
    print('Memory usage of dataframe is {:.2f} MB'.format(start_mem))

    for col in df.columns:
        col_type = df[col].dtype

        if col_type != object:
            c_min = df[col].min()
            c_max = df[col].max()
            if str(col_type)[:3] == 'int':
```

```
                if c_min > np.iinfo(np.int8).min and c_max < np.iinfo(np.int8).max:
                    df[col] = df[col].astype(np.int8)
                elif c_min > np.iinfo(np.int16).min and c_max < np.iinfo(np.int16).max:
                    df[col] = df[col].astype(np.int16)
                elif c_min > np.iinfo(np.int32).min and c_max < np.iinfo(np.int32).max:
                    df[col] = df[col].astype(np.int32)
                elif c_min > np.iinfo(np.int64).min and c_max < np.iinfo(np.int64).max:
                    df[col] = df[col].astype(np.int64)
            else:
                if c_min > np.finfo(np.float16).min and c_max < np.finfo(np.float16).max:
                    df[col] = df[col].astype(np.float16)
                elif c_min > np.finfo(np.float32).min and c_max < np.finfo(np.float32).max:
                    df[col] = df[col].astype(np.float32)
                else:
                    df[col] = df[col].astype(np.float64)
        else:
          if col == 'timestamp':
            print('Keeping timestamp...')
          else:
            df[col] = df[col].astype('category')

    end_mem = df.memory_usage().sum() / 1024**2
    print('Memory usage after optimization is: {:.2f} MB'.format(end_mem))
    print('Decreased by {:.1f}%'.format(100 * (start_mem - end_mem) / start_mem))

    return df

train = reduce_mem_usage(train)
test = reduce_mem_usage(test)
```

```
Memory usage of dataframe is 616.95 MB
Keeping timestamp...
Memory usage after optimization is: 289.19 MB
Decreased by 53.1%
Memory usage of dataframe is 954.38 MB
Keeping timestamp...
Memory usage after optimization is: 437.43 MB
Decreased by 54.2%
```

```
# create column with log of readings for distribution normalization
train['meter_reading_log1p'] = np.log1p(train['meter_reading'])

# converting timestamp to datetime
train['timestamp'] = pd.to_datetime(train['timestamp'])
test['timestamp'] = pd.to_datetime(test['timestamp'])
weather_train['timestamp'] = pd.to_datetime(weather_train['timestamp'])
weather_test['timestamp'] = pd.to_datetime(weather_test['timestamp'])

# create date columns using train dataset
train['timestamp_hour'] = train.timestamp.dt.hour
train['timestamp_day'] = train.timestamp.dt.day # -> possibly overfitting
# train['timestamp_month'] = train.timestamp.dt.month -> possibly overfitting
```

```
# train['timestamp_year'] = train.timestamp.dt.year -> possibly overfitting
train['timestamp_weekday'] = train.timestamp.dt.weekday

# create date columns using test dataset
test['timestamp_hour'] = test.timestamp.dt.hour
test['timestamp_day'] = test.timestamp.dt.day # -> possibly overfitting
# test['timestamp_month'] = test.timestamp.dt.month -> possibly overfitting
# test['timestamp_year'] = test.timestamp.dt.year -> possibly overfitting
test['timestamp_weekday'] = test.timestamp.dt.weekday


# fill missing values in wheater train data set using interpolation
weather_train = weather_train.groupby('site_id').apply(lambda group: group.interpolate(limit_
weather_test = weather_test.groupby('site_id').apply(lambda group: group.interpolate(limit_di

# fill missing values in building_data set using interpolation
building = building.groupby('building_id').apply(lambda group: group.interpolate(limit_direct

# fill the remaining values with the median
b_cols = ['floor_count','year_built','eui']
for c in b_cols:
  building[c].fillna(building[c].median(),inplace=True)
b_cols = ['cloud_coverage','precip_depth_1_hr','sea_level_pressure']
for c in b_cols:
  weather_train[c].fillna(weather_train[c].median(),inplace=True)
  weather_test[c].fillna(weather_test[c].median(),inplace=True)


# merge building data
train = train.merge(building, on = 'building_id', how = 'left')
test = test.merge(building, on = 'building_id', how = 'left')
# merge weather data
train = train.merge(weather_train, on = ['site_id', 'timestamp'], how = 'left')
test = test.merge(weather_test, on = ['site_id', 'timestamp'], how = 'left')

# delete unecessary data
del weather_test,weather_train,building
gc.collect()
```

```
0
```

```
# all eletricity values until March 20 for site_id == 0 are 0,so we'll remove them
to_remove = train.loc[(train.building_id <= 104) & (train.meter == 0) & (train.timestamp <= d
train.drop(to_remove.index,axis=0,inplace=True)

# we can drop the timestamp column now
train.drop(['timestamp'],axis=1,inplace=True)
test.drop(['timestamp'],axis=1,inplace=True)


# encode primary_use column using LabelEncoder
le = LabelEncoder()
```

```
train.loc[:,'primary_use'] = le.fit_transform(train.primary_use)
test.loc[:,'primary_use'] = le.fit_transform(test.primary_use)


#We can drop null rows 'cause they mean that there is no corresponding in the weather data fo
train.dropna(axis =0,inplace=True)

b_cols = ['cloud_coverage','precip_depth_1_hr','sea_level_pressure','dew_temperature','wind_d
for c in b_cols:
  test[c].fillna(test[c].median(),inplace=True)


# create X and y for model input
train = reduce_mem_usage(train)
y = train.meter_reading_log1p
X = train.drop(['meter_reading_log1p'],axis=1)
X.drop(['meter_reading'],axis=1,inplace=True)
# X_train,X_test,y_train,y_test = train_test_split(X,y,test_size=0.33,random_state=42)

gc.collect()
```

```
Memory usage of dataframe is 2923.78 MB
Memory usage after optimization is: 886.57 MB
Decreased by 69.7%
0
```

```
X.drop(['wind_direction','wind_speed','sea_level_pressure'],axis=1,inplace=True)


X.drop(['timestamp_month'],axis=1,inplace=True)


params = {
              'boosting_type': 'gbdt',
              'objective': 'regression',
              'metric': {'rmse'},
              # 'subsample': 0.25,
              # 'subsample_freq': 1,
              'learning_rate': 0.05, # best = .3
              'num_leaves': 40, # best = 4
              'feature_fraction': 0.7, # best = .7
              'reg_lambda': 2, # best  = 1
              # 'lambda_l2': 1, # best = 1
              'max_depth':8, #best  = 2
              # 'baggin_fraction':0.7,
              # 'min_data':100
              }
cat_feat = ["site_id", "building_id", "primary_use", "meter"]
folds = 4
seed = 55
kf = StratifiedKFold(n_splits=folds, shuffle=True, random_state=seed) # shuffle or not

def train_model(x ,y ):
```

```
def train_model(x_,y_):
  # oof_pred = np.zeros(train.shape[0])  # out of fold predictions
  models = []
  ## stratify data by building_id
  for train_index, val_index in tqdm(kf.split(x_, x_['meter'])):
    train_X = x_.iloc[train_index]
    val_X = x_.iloc[val_index]
    train_y = y_.iloc[train_index]
    val_y = y_.iloc[val_index]
    lgb_train = lgb.Dataset(train_X, train_y, categorical_feature=cat_feat)
    lgb_eval = lgb.Dataset(val_X, val_y, categorical_feature=cat_feat)
    gbm = lgb.train(params,
                    lgb_train,
                    num_boost_round=500,
                    valid_sets=(lgb_train, lgb_eval),
                    early_stopping_rounds=100,
                    verbose_eval = 100
                    )
    models.append(gbm)
    del lgb_train,lgb_eval
    gc.collect()
  return models

# submission training
models = train_model(X,y)
```

```
0it [00:00, ?it/s]Training until validation scores don't improve for 100 rounds.
[100]   training's rmse: 1.18202        valid_1's rmse: 1.18181
[200]   training's rmse: 1.06138        valid_1's rmse: 1.06117
[300]   training's rmse: 1.0161 valid_1's rmse: 1.01594
[400]   training's rmse: 0.989771       valid_1's rmse: 0.989689
```

```
1it [06:07, 367.39s/it][500]    training's rmse: 0.974087       valid_1's rmse: 0.97407
Did not meet early stopping. Best iteration is:
[500]   training's rmse: 0.974087       valid_1's rmse: 0.97407
Training until validation scores don't improve for 100 rounds.
[100]   training's rmse: 1.18158        valid_1's rmse: 1.18231
[200]   training's rmse: 1.06528        valid_1's rmse: 1.06608
[300]   training's rmse: 1.02282        valid_1's rmse: 1.02375
[400]   training's rmse: 0.994377       valid_1's rmse: 0.995603
```

```
2it [12:24, 370.38s/it][500]    training's rmse: 0.977232       valid_1's rmse: 0.978638
Did not meet early stopping. Best iteration is:
```

```
df_fimp_1 = pd.DataFrame()
df_fimp_1["feature"] = X.columns.values
df_fimp_1["importance"] = models[0].feature_importance()
df_fimp_1["half"] = 1

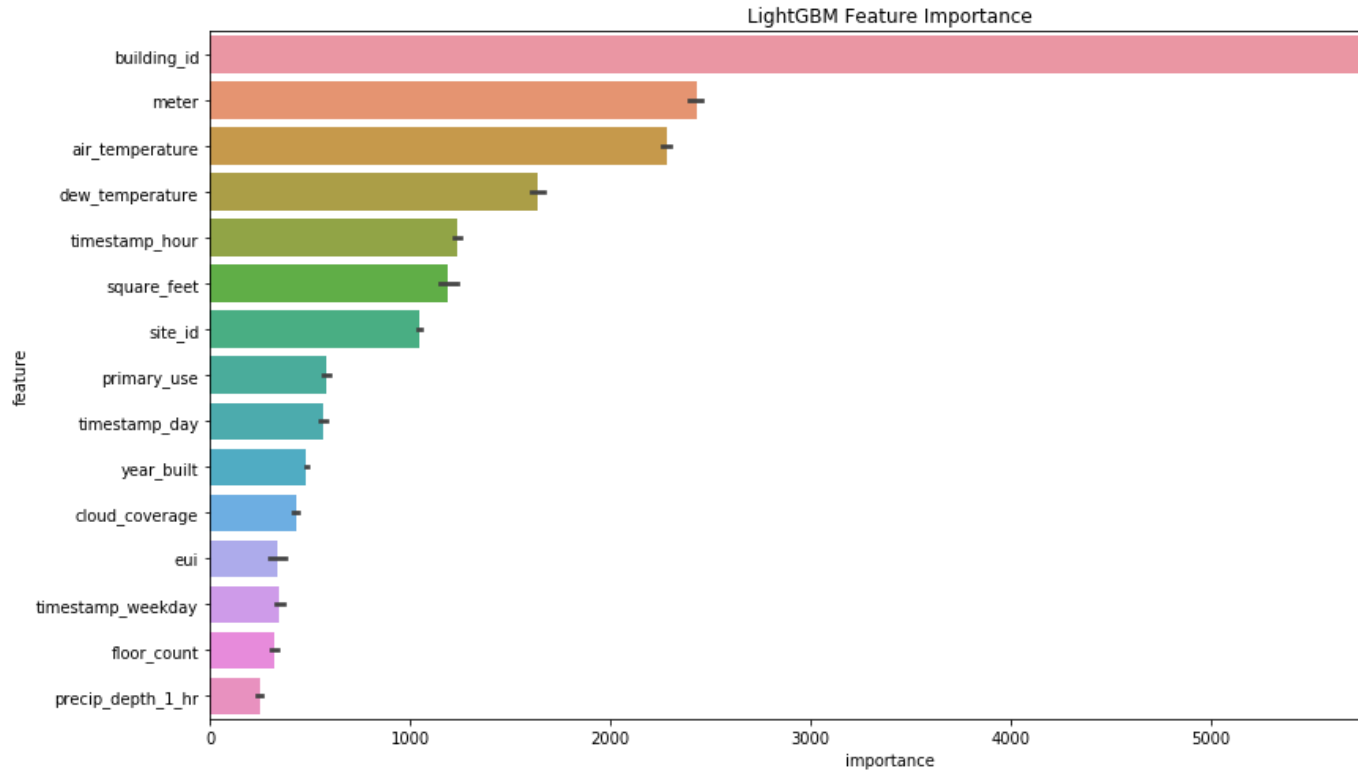
df_fimp_2 = pd.DataFrame()
df_fimp_2["feature"] = X.columns.values
df_fimp_2["importance"] = models[1].feature_importance()
df_fimp_2["half"] = 2

df_fimp_3 = pd.DataFrame()
df_fimp_3["feature"] = X.columns.values
df_fimp_3["importance"] = models[2].feature_importance()
df_fimp_3["half"] = 2

df_fimp_4 = pd.DataFrame()
df_fimp_4["feature"] = X.columns.values
df_fimp_4["importance"] = models[3].feature_importance()
df_fimp_4["half"] = 2

df_fimp = pd.concat([df_fimp_1, df_fimp_2,df_fimp_3,df_fimp_4], axis=0)

plt.figure(figsize=(14, 7))
sns.barplot(x="importance", y="feature", data=df_fimp.sort_values(by="importance", ascending=
plt.title("LightGBM Feature Importance")
plt.tight_layout()
```




```
#Predict using models
def predict_using_models(df):
  i=0
  result=[]
  step_size = 50000
  for j in tqdm(range(int(np.ceil(df.shape[0]/50000)))):
      result.append(np.expm1(sum([model.predict(df.iloc[i:i+step_size]) for model in models])
      i+=step_size
  result = np.concatenate(result)
  return result

result = predict_using_models(test)
```

```
  0%|          | 0/834 [00:00<?, ?it/s]
  0%|          | 1/834 [00:03<53:48,  3.88s/it]
  0%|          | 2/834 [00:07<54:00,  3.89s/it]
  0%|          | 3/834 [00:11<54:02,  3.90s/it]
  0%|          | 4/834 [00:15<53:58,  3.90s/it]
  1%|          | 5/834 [00:19<53:54,  3.90s/it]
  1%|          | 6/834 [00:23<53:59,  3.91s/it]
  1%|          | 7/834 [00:27<53:57,  3.92s/it]
  1%|          | 8/834 [00:31<53:46,  3.91s/it]
  1%|          | 9/834 [00:35<53:41,  3.91s/it]
  1%|          | 10/834 [00:39<53:31,  3.90s/it]
  1%|▏         | 11/834 [00:42<53:32,  3.90s/it]
  1%|▏         | 12/834 [00:46<53:20,  3.89s/it]
  2%|▏         | 13/834 [00:50<53:24,  3.90s/it]
```

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  2%|▏          | 14/834 [00:54<53:27,  3.91s/it]
  2%|▏          | 15/834 [00:58<53:23,  3.91s/it]
  2%|▏          | 16/834 [01:02<53:16,  3.91s/it]
  2%|▏          | 17/834 [01:06<53:18,  3.92s/it]
  2%|▏          | 18/834 [01:10<53:11,  3.91s/it]
  2%|▏          | 19/834 [01:14<53:04,  3.91s/it]
  2%|▏          | 20/834 [01:18<53:07,  3.92s/it]
  3%|▎          | 21/834 [01:22<52:58,  3.91s/it]
  3%|▎          | 22/834 [01:25<52:51,  3.91s/it]
  3%|▎          | 23/834 [01:29<52:50,  3.91s/it]
  3%|▎          | 24/834 [01:33<52:44,  3.91s/it]
  3%|▎          | 25/834 [01:37<52:49,  3.92s/it]
  3%|▎          | 26/834 [01:41<52:45,  3.92s/it]
  3%|▎          | 27/834 [01:45<52:46,  3.92s/it]
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  3%|▌         | 28/834 [01:49<52:41,  3.92s/it]

  3%|▌         | 29/834 [01:53<52:38,  3.92s/it]

  4%|▌         | 30/834 [01:57<52:34,  3.92s/it]

  4%|▌         | 31/834 [02:01<52:30,  3.92s/it]

  4%|▋         | 32/834 [02:05<52:21,  3.92s/it]

  4%|▋         | 33/834 [02:09<52:16,  3.92s/it]

  4%|▋         | 34/834 [02:13<52:11,  3.91s/it]

  4%|▋         | 35/834 [02:16<52:07,  3.91s/it]

  4%|▋         | 36/834 [02:20<52:02,  3.91s/it]

  4%|▋         | 37/834 [02:24<52:00,  3.92s/it]

  5%|▋         | 38/834 [02:28<51:51,  3.91s/it]

  5%|▋         | 39/834 [02:32<51:55,  3.92s/it]

  5%|▋         | 40/834 [02:36<51:43,  3.91s/it]

  5%|▋         | 41/834 [02:40<51:25,  3.89s/it]

  5%|▋         | 42/834 [02:44<51:11,  3.88s/it]
```

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5%|▍         | 42/834 [02:44<51:11,  3.88s/it]

5%|▍         | 43/834 [02:48<51:07,  3.88s/it]

5%|▍         | 44/834 [02:51<50:50,  3.86s/it]

5%|▍         | 45/834 [02:55<50:39,  3.85s/it]

6%|▍         | 46/834 [02:59<50:33,  3.85s/it]

6%|▍         | 47/834 [03:03<50:31,  3.85s/it]

6%|▍         | 48/834 [03:07<50:17,  3.84s/it]

6%|▍         | 49/834 [03:11<50:19,  3.85s/it]

6%|▍         | 50/834 [03:14<50:09,  3.84s/it]

6%|▍         | 51/834 [03:18<50:07,  3.84s/it]

6%|▍         | 52/834 [03:22<50:02,  3.84s/it]

6%|▍         | 53/834 [03:26<50:06,  3.85s/it]

6%|▍         | 54/834 [03:30<50:06,  3.85s/it]

7%|▍         | 55/834 [03:34<50:04,  3.86s/it]

7%|▍         | 56/834 [03:38<49:53,  3.85s/it]
```

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  7%|▋         | 57/834 [03:41<49:47,  3.85s/it]

  7%|▋         | 58/834 [03:45<49:41,  3.84s/it]

  7%|▋         | 59/834 [03:49<49:43,  3.85s/it]

  7%|▋         | 60/834 [03:53<49:41,  3.85s/it]

  7%|▋         | 61/834 [03:57<49:29,  3.84s/it]

  7%|▋         | 62/834 [04:01<49:34,  3.85s/it]

  8%|▊         | 63/834 [04:04<49:24,  3.85s/it]

  8%|▊         | 64/834 [04:08<49:25,  3.85s/it]

  8%|▊         | 65/834 [04:12<49:22,  3.85s/it]

  8%|▊         | 66/834 [04:16<49:10,  3.84s/it]

  8%|▊         | 67/834 [04:20<49:15,  3.85s/it]

  8%|▊         | 68/834 [04:24<49:09,  3.85s/it]

  8%|▊         | 69/834 [04:28<49:09,  3.85s/it]

  8%|▊         | 70/834 [04:31<49:14,  3.87s/it]
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  9%|▉         | 71/834 [04:35<49:20,  3.88s/it]

  9%|▉         | 72/834 [04:39<49:16,  3.88s/it]

  9%|▉         | 73/834 [04:43<49:08,  3.87s/it]

  9%|▉         | 74/834 [04:47<49:07,  3.88s/it]

  9%|▉         | 75/834 [04:51<49:05,  3.88s/it]

  9%|▉         | 76/834 [04:55<49:02,  3.88s/it]

  9%|▉         | 77/834 [04:59<48:58,  3.88s/it]

  9%|▉         | 78/834 [05:03<48:49,  3.88s/it]

  9%|▉         | 79/834 [05:06<48:40,  3.87s/it]

 10%|▉         | 80/834 [05:10<48:42,  3.88s/it]

 10%|▉         | 81/834 [05:14<48:37,  3.87s/it]

 10%|▉         | 82/834 [05:18<48:37,  3.88s/it]

 10%|▉         | 83/834 [05:22<48:38,  3.89s/it]

 10%|▉         | 84/834 [05:26<48:30,  3.88s/it]

 10%|▉         | 85/834 [05:30<48:24,  3.88s/it]
```

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 10%|▉         | 86/834 [05:34<48:17,  3.87s/it]

 10%|▉         | 87/834 [05:37<48:18,  3.88s/it]

 11%|▉         | 88/834 [05:41<48:24,  3.89s/it]

 11%|▉         | 89/834 [05:45<48:18,  3.89s/it]

 11%|▉         | 90/834 [05:49<48:13,  3.89s/it]

 11%|▉         | 91/834 [05:53<48:06,  3.89s/it]

 11%|▉         | 92/834 [05:57<48:06,  3.89s/it]

 11%|▉         | 93/834 [06:01<47:58,  3.89s/it]

 11%|▉         | 94/834 [06:05<48:01,  3.89s/it]

 11%|▉         | 95/834 [06:09<47:51,  3.89s/it]

 12%|▉         | 96/834 [06:12<47:52,  3.89s/it]

 12%|▉         | 97/834 [06:16<47:45,  3.89s/it]

 12%|▉         | 98/834 [06:20<47:46,  3.90s/it]

 12%|▉         | 99/834 [06:24<47:43,  3.90s/it]
```

```
12%|▉         | 100/834 [06:28<47:45,  3.90s/it]

12%|▉         | 101/834 [06:32<47:43,  3.91s/it]

12%|▉         | 102/834 [06:36<47:37,  3.90s/it]

12%|▉         | 103/834 [06:40<47:26,  3.89s/it]

12%|▉         | 104/834 [06:44<47:30,  3.90s/it]

13%|▉         | 105/834 [06:48<47:30,  3.91s/it]

13%|▉         | 106/834 [06:51<47:18,  3.90s/it]

13%|▉         | 107/834 [06:55<47:02,  3.88s/it]

13%|▉         | 108/834 [06:59<47:00,  3.89s/it]

13%|▉         | 109/834 [07:03<46:52,  3.88s/it]

13%|▉         | 110/834 [07:07<46:54,  3.89s/it]

13%|▉         | 111/834 [07:11<46:51,  3.89s/it]

13%|▉         | 112/834 [07:15<47:02,  3.91s/it]

14%|▉         | 113/834 [07:19<46:51,  3.90s/it]

14%|▉         | 114/834 [07:23<46:39,  3.89s/it]
```

```
 14%|▉         | 115/834 [07:26<46:33,  3.89s/it]
 14%|▉         | 116/834 [07:30<46:34,  3.89s/it]
 14%|▉         | 117/834 [07:34<46:31,  3.89s/it]
 14%|▉         | 118/834 [07:38<46:30,  3.90s/it]
 14%|▉         | 119/834 [07:42<46:26,  3.90s/it]
 14%|▉         | 120/834 [07:46<46:13,  3.89s/it]
 15%|▉         | 121/834 [07:50<46:12,  3.89s/it]
 15%|▉         | 122/834 [07:54<46:13,  3.90s/it]
 15%|▉         | 123/834 [07:58<46:00,  3.88s/it]
 15%|▉         | 124/834 [08:01<45:51,  3.88s/it]
 15%|▉         | 125/834 [08:05<45:46,  3.87s/it]
 15%|▉         | 126/834 [08:09<45:48,  3.88s/it]
 15%|▉         | 127/834 [08:13<45:43,  3.88s/it]
 15%|▉         | 128/834 [08:17<45:39,  3.88s/it]
```

```
15%|▏         | 129/834 [08:21<45:31,  3.87s/it]

16%|▏         | 130/834 [08:25<45:35,  3.89s/it]

16%|▏         | 131/834 [08:29<45:35,  3.89s/it]

16%|▏         | 132/834 [08:33<45:31,  3.89s/it]

16%|▏         | 133/834 [08:36<45:25,  3.89s/it]

16%|▏         | 134/834 [08:40<45:27,  3.90s/it]

16%|▏         | 135/834 [08:44<45:22,  3.90s/it]

16%|▏         | 136/834 [08:48<45:10,  3.88s/it]

16%|▏         | 137/834 [08:52<45:02,  3.88s/it]

17%|▏         | 138/834 [08:56<45:01,  3.88s/it]

17%|▏         | 139/834 [09:00<45:01,  3.89s/it]

17%|▏         | 140/834 [09:04<45:05,  3.90s/it]

17%|▏         | 141/834 [09:08<45:03,  3.90s/it]

17%|▏         | 142/834 [09:11<44:58,  3.90s/it]
```

```
17%|▉         | 143/834 [09:15<44:53,  3.90s/it]
17%|▉         | 144/834 [09:19<44:52,  3.90s/it]
17%|▉         | 145/834 [09:23<44:52,  3.91s/it]
18%|▉         | 146/834 [09:27<44:40,  3.90s/it]
18%|▉         | 147/834 [09:31<44:33,  3.89s/it]
18%|▉         | 148/834 [09:35<44:29,  3.89s/it]
18%|▉         | 149/834 [09:39<44:22,  3.89s/it]
18%|▉         | 150/834 [09:43<44:22,  3.89s/it]
18%|▉         | 151/834 [09:47<44:24,  3.90s/it]
18%|▉         | 152/834 [09:50<44:16,  3.89s/it]
18%|▉         | 153/834 [09:54<44:09,  3.89s/it]
18%|▉         | 154/834 [09:58<44:03,  3.89s/it]
19%|▉         | 155/834 [10:02<44:05,  3.90s/it]
19%|▉         | 156/834 [10:06<44:00,  3.89s/it]
19%|▉         | 157/834 [10:10<43:55,  3.89s/it]
```

```
19%|█▊        | 158/834 [10:14<43:50,  3.89s/it]
19%|█▊        | 159/834 [10:18<43:47,  3.89s/it]
19%|█▊        | 160/834 [10:22<43:46,  3.90s/it]
19%|█▊        | 161/834 [10:25<43:42,  3.90s/it]
19%|█▊        | 162/834 [10:29<43:36,  3.89s/it]
20%|█▊        | 163/834 [10:33<43:32,  3.89s/it]
20%|█▊        | 164/834 [10:37<43:32,  3.90s/it]
20%|█▊        | 165/834 [10:41<43:30,  3.90s/it]
20%|█▊        | 166/834 [10:45<43:14,  3.88s/it]
20%|██        | 167/834 [10:49<43:10,  3.88s/it]
20%|██        | 168/834 [10:53<43:14,  3.90s/it]
20%|██        | 169/834 [10:56<42:51,  3.87s/it]
20%|██        | 170/834 [11:00<42:39,  3.85s/it]
21%|██        | 171/834 [11:04<42:19,  3.83s/it]
```

```
21%|██        | 172/834 [11:08<42:09,  3.82s/it]

21%|██        | 173/834 [11:12<41:59,  3.81s/it]

21%|██        | 174/834 [11:15<41:54,  3.81s/it]

21%|██        | 175/834 [11:19<41:45,  3.80s/it]

21%|██        | 176/834 [11:23<41:41,  3.80s/it]

21%|██        | 177/834 [11:27<41:41,  3.81s/it]

21%|██▏       | 178/834 [11:31<41:36,  3.81s/it]

21%|██▏       | 179/834 [11:35<41:32,  3.81s/it]

22%|██▏       | 180/834 [11:38<41:28,  3.81s/it]

22%|██▏       | 181/834 [11:42<41:28,  3.81s/it]

22%|██▏       | 182/834 [11:46<41:22,  3.81s/it]

22%|██▏       | 183/834 [11:50<41:18,  3.81s/it]

22%|██▏       | 184/834 [11:54<41:15,  3.81s/it]

22%|██▏       | 185/834 [11:57<41:05,  3.80s/it]

22%|██▏       | 186/834 [12:01<41:01,  3.80s/it]
```

```
 22%|██▏       | 187/834 [12:05<40:59,  3.80s/it]

 23%|██▏       | 188/834 [12:09<40:58,  3.81s/it]

 23%|██▏       | 189/834 [12:13<40:55,  3.81s/it]

 23%|██▏       | 190/834 [12:16<40:47,  3.80s/it]

 23%|██▏       | 191/834 [12:20<40:49,  3.81s/it]

 23%|██▏       | 192/834 [12:24<40:50,  3.82s/it]

 23%|██▏       | 193/834 [12:28<40:46,  3.82s/it]

 23%|██▏       | 194/834 [12:32<40:36,  3.81s/it]

 23%|██▏       | 195/834 [12:35<40:35,  3.81s/it]

 24%|██▏       | 196/834 [12:39<40:31,  3.81s/it]

 24%|██▏       | 197/834 [12:43<40:29,  3.81s/it]

 24%|██▏       | 198/834 [12:47<40:24,  3.81s/it]

 24%|██▏       | 199/834 [12:51<40:20,  3.81s/it]

 24%|██▏       | 200/834 [12:54<40:15,  3.81s/it]
```

```
24%|██▍       | 201/834 [12:58<40:09,  3.81s/it]
24%|██▍       | 202/834 [13:02<40:06,  3.81s/it]
24%|██▍       | 203/834 [13:06<40:02,  3.81s/it]
24%|██▍       | 204/834 [13:10<39:54,  3.80s/it]
25%|██▍       | 205/834 [13:14<39:56,  3.81s/it]
25%|██▍       | 206/834 [13:17<39:51,  3.81s/it]
25%|██▍       | 207/834 [13:21<39:45,  3.80s/it]
25%|██▍       | 208/834 [13:25<39:36,  3.80s/it]
25%|██▌       | 209/834 [13:29<39:29,  3.79s/it]
25%|██▌       | 210/834 [13:33<39:35,  3.81s/it]
25%|██▌       | 211/834 [13:36<39:33,  3.81s/it]
25%|██▌       | 212/834 [13:40<39:28,  3.81s/it]
26%|██▌       | 213/834 [13:44<39:27,  3.81s/it]
26%|██▌       | 214/834 [13:48<39:27,  3.82s/it]
```

```
26%|██▌       | 215/834 [13:52<39:19,  3.81s/it]

26%|██▌       | 216/834 [13:55<39:14,  3.81s/it]

26%|██▌       | 217/834 [13:59<39:08,  3.81s/it]

26%|██▌       | 218/834 [14:03<39:00,  3.80s/it]

26%|██▌       | 219/834 [14:07<39:03,  3.81s/it]

26%|██▌       | 220/834 [14:11<39:02,  3.82s/it]

26%|██▌       | 221/834 [14:14<38:53,  3.81s/it]

27%|██▋       | 222/834 [14:18<38:49,  3.81s/it]

27%|██▋       | 223/834 [14:22<38:46,  3.81s/it]

27%|██▋       | 224/834 [14:26<38:42,  3.81s/it]

27%|██▋       | 225/834 [14:30<38:38,  3.81s/it]

27%|██▋       | 226/834 [14:33<38:31,  3.80s/it]

27%|██▋       | 227/834 [14:37<38:32,  3.81s/it]

27%|██▋       | 228/834 [14:41<38:29,  3.81s/it]

27%|██▋       | 229/834 [14:45<38:33,  3.82s/it]
```

28%|██▊ | 230/834 [14:49<38:24, 3.82s/it]

28%|██▊ | 231/834 [14:53<38:20, 3.82s/it]

28%|██▊ | 232/834 [14:56<38:10, 3.80s/it]

28%|██▊ | 233/834 [15:00<38:07, 3.81s/it]

28%|██▊ | 234/834 [15:04<38:04, 3.81s/it]

28%|██▊ | 235/834 [15:08<38:09, 3.82s/it]

28%|██▊ | 236/834 [15:12<38:04, 3.82s/it]

28%|██▊ | 237/834 [15:15<37:55, 3.81s/it]

29%|██▊ | 238/834 [15:19<37:44, 3.80s/it]

29%|██▊ | 239/834 [15:23<37:30, 3.78s/it]

29%|██▊ | 240/834 [15:27<37:23, 3.78s/it]

29%|██▊ | 241/834 [15:30<37:10, 3.76s/it]

29%|██▊ | 242/834 [15:34<36:58, 3.75s/it]

29%|██▊ | 243/834 [15:38<37:04, 3.76s/it]

```
29%|██▉       | 244/834 [15:42<37:04,  3.77s/it]

29%|██▉       | 245/834 [15:45<36:55,  3.76s/it]

29%|██▉       | 246/834 [15:49<36:45,  3.75s/it]

30%|██▉       | 247/834 [15:53<36:43,  3.75s/it]

30%|██▉       | 248/834 [15:57<36:36,  3.75s/it]

30%|██▉       | 249/834 [16:00<36:28,  3.74s/it]

30%|██▉       | 250/834 [16:04<36:26,  3.74s/it]

30%|███       | 251/834 [16:08<36:24,  3.75s/it]

30%|███       | 252/834 [16:12<36:20,  3.75s/it]

30%|███       | 253/834 [16:15<36:03,  3.72s/it]

30%|███       | 254/834 [16:19<36:02,  3.73s/it]

31%|███       | 255/834 [16:23<35:59,  3.73s/it]

31%|███       | 256/834 [16:27<35:55,  3.73s/it]

31%|███       | 257/834 [16:30<35:52,  3.73s/it]

31%|███       | 258/834 [16:34<35:50,  3.73s/it]
```

```
31%|███       | 259/834 [16:38<35:45,  3.73s/it]

31%|███       | 260/834 [16:41<35:43,  3.73s/it]

31%|███       | 261/834 [16:45<35:35,  3.73s/it]

31%|███       | 262/834 [16:49<35:29,  3.72s/it]

32%|███       | 263/834 [16:53<35:28,  3.73s/it]

32%|███       | 264/834 [16:56<35:26,  3.73s/it]

32%|███       | 265/834 [17:00<35:24,  3.73s/it]

32%|███       | 266/834 [17:04<35:21,  3.74s/it]

32%|███       | 267/834 [17:08<35:11,  3.72s/it]

32%|███       | 268/834 [17:11<35:08,  3.72s/it]

32%|███       | 269/834 [17:15<34:59,  3.72s/it]

32%|███       | 270/834 [17:19<34:58,  3.72s/it]

32%|███       | 271/834 [17:22<34:55,  3.72s/it]

33%|███       | 272/834 [17:26<34:54,  3.73s/it]
```

```
33%|███       | 273/834 [17:30<34:58,  3.74s/it]
33%|███       | 274/834 [17:34<34:59,  3.75s/it]
33%|███       | 275/834 [17:37<34:56,  3.75s/it]
33%|███       | 276/834 [17:41<34:48,  3.74s/it]
33%|███       | 277/834 [17:45<34:45,  3.74s/it]
33%|███       | 278/834 [17:49<34:46,  3.75s/it]
33%|███       | 279/834 [17:52<34:38,  3.75s/it]
34%|███       | 280/834 [17:56<34:33,  3.74s/it]
34%|███       | 281/834 [18:00<34:27,  3.74s/it]
34%|███       | 282/834 [18:04<34:23,  3.74s/it]
34%|███       | 283/834 [18:07<34:16,  3.73s/it]
34%|███       | 284/834 [18:11<34:08,  3.72s/it]
34%|███       | 285/834 [18:15<34:07,  3.73s/it]
34%|███       | 286/834 [18:18<33:59,  3.72s/it]
34%|███       | 287/834 [18:22<33:55,  3.72s/it]
```

34%|███▍ | 287/834 [18:22<33:55, 3.72s/it]

35%|███▍ | 288/834 [18:26<33:53, 3.72s/it]

35%|███▍ | 289/834 [18:30<33:51, 3.73s/it]

35%|███▍ | 290/834 [18:33<33:50, 3.73s/it]

35%|███▍ | 291/834 [18:37<33:48, 3.74s/it]

35%|███▍ | 292/834 [18:41<33:44, 3.74s/it]

35%|███▍ | 293/834 [18:45<33:45, 3.74s/it]

35%|███▍ | 294/834 [18:48<33:43, 3.75s/it]

35%|███▍ | 295/834 [18:52<33:33, 3.74s/it]

35%|███▍ | 296/834 [18:56<33:28, 3.73s/it]

36%|███▌ | 297/834 [19:00<33:17, 3.72s/it]

36%|███▌ | 298/834 [19:03<33:08, 3.71s/it]

36%|███▌ | 299/834 [19:07<33:00, 3.70s/it]

36%|███▌ | 300/834 [19:11<33:02, 3.71s/it]

36%|███▌ | 301/834 [19:14<32:47, 3.69s/it]

```
36%|███       | 302/834 [19:18<32:48,  3.70s/it]
36%|███▏      | 303/834 [19:22<32:43,  3.70s/it]
36%|███▏      | 304/834 [19:25<32:37,  3.69s/it]
37%|███▏      | 305/834 [19:29<32:38,  3.70s/it]
37%|███▏      | 306/834 [19:33<32:29,  3.69s/it]
37%|███▏      | 307/834 [19:37<32:37,  3.72s/it]
37%|███▏      | 308/834 [19:40<32:31,  3.71s/it]
37%|███▏      | 309/834 [19:44<32:27,  3.71s/it]
37%|███▏      | 310/834 [19:48<32:22,  3.71s/it]
37%|███▏      | 311/834 [19:51<32:20,  3.71s/it]
37%|███▏      | 312/834 [19:55<32:16,  3.71s/it]
38%|███▏      | 313/834 [19:59<32:13,  3.71s/it]
38%|███▏      | 314/834 [20:02<32:01,  3.70s/it]
38%|███▏      | 315/834 [20:06<31:50,  3.68s/it]
```

```
38%|███▊      | 316/834 [20:10<31:47,  3.68s/it]

38%|███▊      | 317/834 [20:14<31:49,  3.69s/it]

38%|███▊      | 318/834 [20:17<31:42,  3.69s/it]

38%|███▊      | 319/834 [20:21<31:38,  3.69s/it]

38%|███▊      | 320/834 [20:25<31:31,  3.68s/it]

38%|███▊      | 321/834 [20:28<31:38,  3.70s/it]

39%|███▊      | 322/834 [20:32<31:37,  3.71s/it]

39%|███▊      | 323/834 [20:36<31:36,  3.71s/it]

39%|███▊      | 324/834 [20:39<31:28,  3.70s/it]

39%|███▊      | 325/834 [20:43<31:25,  3.70s/it]

39%|███▊      | 326/834 [20:47<31:22,  3.70s/it]

39%|███▊      | 327/834 [20:51<31:25,  3.72s/it]

39%|███▊      | 328/834 [20:54<31:36,  3.75s/it]

39%|███▊      | 329/834 [20:58<31:42,  3.77s/it]

40%|███▉      | 330/834 [21:02<31:40,  3.77s/it]
```

```
40%|███▉      | 331/834 [21:06<31:41,  3.78s/it]
40%|███▉      | 332/834 [21:10<31:43,  3.79s/it]
40%|███▉      | 333/834 [21:13<31:35,  3.78s/it]
40%|███▉      | 334/834 [21:17<31:31,  3.78s/it]
40%|███▉      | 335/834 [21:21<31:26,  3.78s/it]
40%|███▉      | 336/834 [21:25<31:18,  3.77s/it]
40%|███▉      | 337/834 [21:28<31:03,  3.75s/it]
41%|████      | 338/834 [21:32<31:03,  3.76s/it]
41%|████      | 339/834 [21:36<31:04,  3.77s/it]
41%|████      | 340/834 [21:40<31:15,  3.80s/it]
41%|████      | 341/834 [21:44<31:15,  3.80s/it]
41%|████      | 342/834 [21:47<31:19,  3.82s/it]
41%|████      | 343/834 [21:51<31:22,  3.83s/it]
41%|████      | 344/834 [21:55<31:12,  3.82s/it]
```

```
41%|████      | 345/834 [21:59<31:12,  3.83s/it]

41%|████      | 346/834 [22:03<31:13,  3.84s/it]

42%|████      | 347/834 [22:07<31:07,  3.83s/it]

42%|████      | 348/834 [22:10<30:59,  3.83s/it]

42%|████      | 349/834 [22:14<30:52,  3.82s/it]

42%|████      | 350/834 [22:18<30:41,  3.80s/it]

42%|████      | 351/834 [22:22<30:37,  3.80s/it]

42%|████      | 352/834 [22:26<30:28,  3.79s/it]

42%|████      | 353/834 [22:29<30:21,  3.79s/it]

42%|████      | 354/834 [22:33<30:11,  3.77s/it]

43%|████      | 355/834 [22:37<30:12,  3.78s/it]

43%|████      | 356/834 [22:41<30:28,  3.83s/it]

43%|████      | 357/834 [22:45<30:30,  3.84s/it]

43%|████      | 358/834 [22:49<30:37,  3.86s/it]

43%|████      | 359/834 [22:53<30:42,  3.88s/it]
```

43%|████▎ | 360/834 [22:56<30:37, 3.88s/it]

43%|████▎ | 361/834 [23:00<30:34, 3.88s/it]

43%|████▎ | 362/834 [23:04<30:40, 3.90s/it]

44%|████▎ | 363/834 [23:08<30:29, 3.88s/it]

44%|████▎ | 364/834 [23:12<30:34, 3.90s/it]

44%|████▎ | 365/834 [23:16<30:24, 3.89s/it]

44%|████▎ | 366/834 [23:20<30:22, 3.89s/it]

44%|████▎ | 367/834 [23:24<30:20, 3.90s/it]

44%|████▎ | 368/834 [23:28<30:10, 3.88s/it]

44%|████▎ | 369/834 [23:31<29:54, 3.86s/it]

44%|████▎ | 370/834 [23:35<29:21, 3.80s/it]

44%|████▎ | 371/834 [23:39<28:55, 3.75s/it]

45%|████▍ | 372/834 [23:42<28:42, 3.73s/it]

45%|████▍ | 373/834 [23:46<28:26, 3.70s/it]

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45%|████▍      | 374/834 [23:50<28:19,  3.69s/it]

45%|████▍      | 375/834 [23:53<28:14,  3.69s/it]

45%|████▍      | 376/834 [23:57<28:05,  3.68s/it]

45%|████▍      | 377/834 [24:01<28:00,  3.68s/it]

45%|████▍      | 378/834 [24:04<27:50,  3.66s/it]

45%|████▍      | 379/834 [24:08<27:36,  3.64s/it]

46%|████▍      | 380/834 [24:11<27:24,  3.62s/it]

46%|████▍      | 381/834 [24:15<27:18,  3.62s/it]

46%|████▍      | 382/834 [24:19<27:18,  3.63s/it]

46%|████▍      | 383/834 [24:22<27:18,  3.63s/it]

46%|████▍      | 384/834 [24:26<27:11,  3.62s/it]

46%|████▍      | 385/834 [24:30<27:06,  3.62s/it]

46%|████▍      | 386/834 [24:33<26:55,  3.61s/it]

46%|████▍      | 387/834 [24:37<26:51,  3.60s/it]
```

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47%|████▋     | 388/834 [24:40<26:53,  3.62s/it]

47%|████▋     | 389/834 [24:44<27:00,  3.64s/it]

47%|████▋     | 390/834 [24:48<26:54,  3.64s/it]

47%|████▋     | 391/834 [24:51<26:41,  3.62s/it]

47%|████▋     | 392/834 [24:55<26:38,  3.62s/it]

47%|████▋     | 393/834 [24:59<26:40,  3.63s/it]

47%|████▋     | 394/834 [25:02<26:44,  3.65s/it]

47%|████▋     | 395/834 [25:06<27:00,  3.69s/it]

47%|████▋     | 396/834 [25:10<27:09,  3.72s/it]

48%|████▊     | 397/834 [25:14<27:11,  3.73s/it]

48%|████▊     | 398/834 [25:17<27:05,  3.73s/it]

48%|████▊     | 399/834 [25:21<26:58,  3.72s/it]

48%|████▊     | 400/834 [25:25<26:47,  3.70s/it]

48%|████▊     | 401/834 [25:28<26:44,  3.71s/it]

48%|████▊     | 402/834 [25:32<26:42,  3.71s/it]
```

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48%|████▊     | 403/834 [25:36<26:43,  3.72s/it]
48%|████▊     | 404/834 [25:40<26:44,  3.73s/it]
49%|████▊     | 405/834 [25:43<26:39,  3.73s/it]
49%|████▊     | 406/834 [25:47<26:30,  3.72s/it]
49%|████▊     | 407/834 [25:51<26:21,  3.70s/it]
49%|████▊     | 408/834 [25:54<26:14,  3.70s/it]
49%|████▊     | 409/834 [25:58<26:06,  3.69s/it]
49%|████▊     | 410/834 [26:02<26:06,  3.69s/it]
49%|████▊     | 411/834 [26:05<25:57,  3.68s/it]
49%|████▊     | 412/834 [26:09<25:47,  3.67s/it]
50%|████▊     | 413/834 [26:13<25:43,  3.67s/it]
50%|████▊     | 414/834 [26:16<25:35,  3.65s/it]
50%|████▊     | 415/834 [26:20<25:33,  3.66s/it]
50%|████▊     | 416/834 [26:24<25:28,  3.66s/it]
```

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50%|█████     | 417/834 [26:27<25:25,  3.66s/it]

50%|█████     | 418/834 [26:31<25:27,  3.67s/it]

50%|█████     | 419/834 [26:35<25:25,  3.68s/it]

50%|█████     | 420/834 [26:38<25:32,  3.70s/it]

50%|█████     | 421/834 [26:42<25:37,  3.72s/it]

51%|█████     | 422/834 [26:46<25:30,  3.71s/it]

51%|█████     | 423/834 [26:50<25:21,  3.70s/it]

51%|█████     | 424/834 [26:53<25:20,  3.71s/it]

51%|█████     | 425/834 [26:57<25:22,  3.72s/it]

51%|█████     | 426/834 [27:01<25:11,  3.70s/it]

51%|█████     | 427/834 [27:04<25:10,  3.71s/it]

51%|█████     | 428/834 [27:08<25:07,  3.71s/it]

51%|█████     | 429/834 [27:12<25:04,  3.72s/it]

52%|█████     | 430/834 [27:16<24:52,  3.69s/it]

52%|█████     | 431/834 [27:19<24:47,  3.69s/it]
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52%|█████     | 432/834 [27:23<24:49,  3.70s/it]

52%|█████     | 433/834 [27:27<24:45,  3.70s/it]

52%|█████     | 434/834 [27:30<24:38,  3.70s/it]

52%|█████     | 435/834 [27:34<24:38,  3.71s/it]

52%|█████     | 436/834 [27:38<24:38,  3.71s/it]

52%|█████     | 437/834 [27:42<24:42,  3.73s/it]

53%|█████     | 438/834 [27:45<24:28,  3.71s/it]

53%|█████     | 439/834 [27:49<24:27,  3.72s/it]

53%|█████     | 440/834 [27:53<24:25,  3.72s/it]

53%|█████     | 441/834 [27:56<24:25,  3.73s/it]

53%|█████     | 442/834 [28:00<24:27,  3.74s/it]

53%|█████     | 443/834 [28:04<24:21,  3.74s/it]

53%|█████     | 444/834 [28:08<24:17,  3.74s/it]

53%|█████     | 445/834 [28:11<24:16,  3.74s/it]
```

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53%|█████     | 446/834 [28:15<24:11,  3.74s/it]

54%|█████     | 447/834 [28:19<24:07,  3.74s/it]

54%|█████     | 448/834 [28:23<23:55,  3.72s/it]

54%|█████     | 449/834 [28:26<23:51,  3.72s/it]

54%|█████     | 450/834 [28:30<23:50,  3.73s/it]

54%|█████     | 451/834 [28:34<23:46,  3.72s/it]

54%|█████     | 452/834 [28:38<23:45,  3.73s/it]

54%|█████     | 453/834 [28:41<23:42,  3.73s/it]

54%|█████     | 454/834 [28:45<23:37,  3.73s/it]

55%|█████     | 455/834 [28:49<23:31,  3.72s/it]

55%|█████     | 456/834 [28:52<23:27,  3.72s/it]

55%|█████     | 457/834 [28:56<23:21,  3.72s/it]

55%|█████     | 458/834 [29:00<23:19,  3.72s/it]

55%|█████     | 459/834 [29:04<23:17,  3.73s/it]
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55%|█████     | 460/834 [29:07<23:13,  3.73s/it]

55%|█████     | 461/834 [29:11<23:03,  3.71s/it]

55%|█████     | 462/834 [29:15<23:03,  3.72s/it]

56%|█████     | 463/834 [29:18<23:00,  3.72s/it]

56%|█████     | 464/834 [29:22<23:02,  3.74s/it]

56%|█████     | 465/834 [29:26<22:56,  3.73s/it]

56%|█████     | 466/834 [29:30<22:56,  3.74s/it]

56%|█████     | 467/834 [29:33<22:54,  3.74s/it]

56%|█████     | 468/834 [29:37<22:50,  3.74s/it]

56%|█████     | 469/834 [29:41<22:46,  3.74s/it]

56%|█████▏    | 470/834 [29:45<22:45,  3.75s/it]

56%|█████▏    | 471/834 [29:48<22:41,  3.75s/it]

57%|█████▏    | 472/834 [29:52<22:38,  3.75s/it]

57%|█████▏    | 473/834 [29:56<22:37,  3.76s/it]

57%|█████▏    | 474/834 [30:00<22:30,  3.75s/it]
```

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57%|█████▋    | 475/834 [30:03<22:24,  3.74s/it]
57%|█████▋    | 476/834 [30:07<22:17,  3.74s/it]
57%|█████▋    | 477/834 [30:11<22:11,  3.73s/it]
57%|█████▋    | 478/834 [30:15<22:07,  3.73s/it]
57%|█████▋    | 479/834 [30:18<21:56,  3.71s/it]
58%|█████▊    | 480/834 [30:22<21:55,  3.72s/it]
58%|█████▊    | 481/834 [30:26<21:49,  3.71s/it]
58%|█████▊    | 482/834 [30:29<21:50,  3.72s/it]
58%|█████▊    | 483/834 [30:33<21:45,  3.72s/it]
58%|█████▊    | 484/834 [30:37<21:31,  3.69s/it]
58%|█████▊    | 485/834 [30:40<21:14,  3.65s/it]
58%|█████▊    | 486/834 [30:44<21:09,  3.65s/it]
58%|█████▊    | 487/834 [30:48<21:04,  3.65s/it]
59%|█████▊    | 488/834 [30:51<20:59,  3.64s/it]
```

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59%|█████▉    | 489/834 [30:55<20:48,  3.62s/it]

59%|█████▉    | 490/834 [30:58<20:40,  3.61s/it]

59%|█████▉    | 491/834 [31:02<20:36,  3.60s/it]

59%|█████▉    | 492/834 [31:06<20:29,  3.60s/it]

59%|█████▉    | 493/834 [31:09<20:28,  3.60s/it]

59%|█████▉    | 494/834 [31:13<20:27,  3.61s/it]

59%|█████▉    | 495/834 [31:16<20:25,  3.61s/it]

59%|█████▉    | 496/834 [31:20<20:25,  3.63s/it]

60%|█████▉    | 497/834 [31:24<20:18,  3.62s/it]

60%|█████▉    | 498/834 [31:27<20:13,  3.61s/it]

60%|█████▉    | 499/834 [31:31<20:06,  3.60s/it]

60%|█████▉    | 500/834 [31:35<20:04,  3.61s/it]

60%|██████    | 501/834 [31:38<19:58,  3.60s/it]

60%|██████    | 502/834 [31:42<19:50,  3.59s/it]

60%|██████    | 503/834 [31:45<19:50,  3.60s/it]
```

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60%|██████    | 504/834 [31:49<19:42,  3.58s/it]

61%|██████    | 505/834 [31:52<19:45,  3.60s/it]

61%|██████    | 506/834 [31:56<19:50,  3.63s/it]

61%|██████    | 507/834 [32:00<19:51,  3.64s/it]

61%|██████    | 508/834 [32:03<19:45,  3.64s/it]

61%|██████    | 509/834 [32:07<19:41,  3.64s/it]

61%|██████    | 510/834 [32:11<19:35,  3.63s/it]

61%|██████▏   | 511/834 [32:14<19:37,  3.65s/it]

61%|██████▏   | 512/834 [32:18<19:35,  3.65s/it]

62%|██████▏   | 513/834 [32:22<19:36,  3.67s/it]

62%|██████▏   | 514/834 [32:25<19:35,  3.67s/it]

62%|██████▏   | 515/834 [32:29<19:36,  3.69s/it]

62%|██████▏   | 516/834 [32:33<19:37,  3.70s/it]

62%|██████▏   | 517/834 [32:37<19:30,  3.69s/it]
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62%|██████▏ | 518/834 [32:40<19:30, 3.71s/it]

62%|██████▏ | 519/834 [32:44<19:29, 3.71s/it]

62%|██████▏ | 520/834 [32:48<19:27, 3.72s/it]

62%|██████▏ | 521/834 [32:52<19:26, 3.73s/it]

63%|██████▏ | 522/834 [32:55<19:24, 3.73s/it]

63%|██████▏ | 523/834 [32:59<19:13, 3.71s/it]

63%|██████▏ | 524/834 [33:03<19:03, 3.69s/it]

63%|██████▏ | 525/834 [33:06<18:56, 3.68s/it]

63%|██████▏ | 526/834 [33:10<18:48, 3.66s/it]

63%|██████▏ | 527/834 [33:13<18:40, 3.65s/it]

63%|██████▏ | 528/834 [33:17<18:34, 3.64s/it]

63%|██████▏ | 529/834 [33:21<18:29, 3.64s/it]

64%|██████▏ | 530/834 [33:24<18:25, 3.64s/it]

64%|██████▏ | 531/834 [33:28<18:22, 3.64s/it]

64%|██████▏ | 532/834 [33:32<18:18, 3.64s/it]

64%|██████▍ | 532/834 [33:32<18:18, 3.64s/it]

64%|██████▍ | 533/834 [33:35<18:15, 3.64s/it]

64%|██████▍ | 534/834 [33:39<18:09, 3.63s/it]

64%|██████▍ | 535/834 [33:43<18:07, 3.64s/it]

64%|██████▍ | 536/834 [33:46<18:13, 3.67s/it]

64%|██████▍ | 537/834 [33:50<18:15, 3.69s/it]

65%|██████▍ | 538/834 [33:54<18:16, 3.70s/it]

65%|██████▍ | 539/834 [33:58<18:18, 3.72s/it]

65%|██████▍ | 540/834 [34:01<18:18, 3.74s/it]

65%|██████▍ | 541/834 [34:05<18:18, 3.75s/it]

65%|██████▍ | 542/834 [34:09<18:16, 3.76s/it]

65%|██████▌ | 543/834 [34:13<18:11, 3.75s/it]

65%|██████▌ | 544/834 [34:16<18:10, 3.76s/it]

65%|██████▌ | 545/834 [34:20<18:04, 3.75s/it]

65%|██████▌ | 546/834 [34:24<18:00, 3.75s/it]

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66%|██████    | 547/834 [34:28<17:54,  3.74s/it]

66%|██████    | 548/834 [34:31<17:55,  3.76s/it]

66%|██████    | 549/834 [34:35<17:46,  3.74s/it]

66%|██████    | 550/834 [34:39<17:42,  3.74s/it]

66%|██████    | 551/834 [34:43<17:41,  3.75s/it]

66%|██████    | 552/834 [34:46<17:37,  3.75s/it]

66%|██████▏   | 553/834 [34:50<17:34,  3.75s/it]

66%|██████▏   | 554/834 [34:54<17:31,  3.75s/it]

67%|██████▏   | 555/834 [34:58<17:24,  3.74s/it]

67%|██████▏   | 556/834 [35:01<17:20,  3.74s/it]

67%|██████▏   | 557/834 [35:05<17:18,  3.75s/it]

67%|██████▏   | 558/834 [35:09<17:13,  3.75s/it]

67%|██████▏   | 559/834 [35:13<17:10,  3.75s/it]

67%|██████▏   | 560/834 [35:16<17:09,  3.76s/it]
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67%|▋| 561/834 [35:20<17:04, 3.75s/it]

67%|▋| 562/834 [35:24<16:59, 3.75s/it]

68%|▋| 563/834 [35:28<16:55, 3.75s/it]

68%|▋| 564/834 [35:31<16:49, 3.74s/it]

68%|▋| 565/834 [35:35<16:47, 3.74s/it]

68%|▋| 566/834 [35:39<16:43, 3.75s/it]

68%|▋| 567/834 [35:43<16:38, 3.74s/it]

68%|▋| 568/834 [35:46<16:34, 3.74s/it]

68%|▋| 569/834 [35:50<16:32, 3.75s/it]

68%|▋| 570/834 [35:54<16:29, 3.75s/it]

68%|▋| 571/834 [35:58<16:27, 3.75s/it]

69%|▋| 572/834 [36:01<16:22, 3.75s/it]

69%|▋| 573/834 [36:05<16:21, 3.76s/it]

69%|▋| 574/834 [36:09<16:17, 3.76s/it]

69%|▋| 575/834 [36:13<16:13, 3.76s/it]

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69%|██████▉   | 576/834 [36:16<16:12,  3.77s/it]
69%|██████▉   | 577/834 [36:20<16:06,  3.76s/it]
69%|██████▉   | 578/834 [36:24<16:02,  3.76s/it]
69%|██████▉   | 579/834 [36:28<16:00,  3.77s/it]
70%|██████▉   | 580/834 [36:31<15:57,  3.77s/it]
70%|██████▉   | 581/834 [36:35<15:51,  3.76s/it]
70%|██████▉   | 582/834 [36:39<15:48,  3.76s/it]
70%|██████▉   | 583/834 [36:43<15:44,  3.76s/it]
70%|███████   | 584/834 [36:47<15:43,  3.77s/it]
70%|███████   | 585/834 [36:50<15:37,  3.77s/it]
70%|███████   | 586/834 [36:54<15:31,  3.76s/it]
70%|███████   | 587/834 [36:58<15:27,  3.76s/it]
71%|███████   | 588/834 [37:02<15:25,  3.76s/it]
71%|███████   | 589/834 [37:05<15:21,  3.76s/it]
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71%|███████   | 590/834 [37:09<15:17,  3.76s/it]

71%|███████   | 591/834 [37:13<15:11,  3.75s/it]

71%|███████   | 592/834 [37:17<15:07,  3.75s/it]

71%|███████   | 593/834 [37:20<15:03,  3.75s/it]

71%|███████   | 594/834 [37:24<14:58,  3.74s/it]

71%|███████   | 595/834 [37:28<14:56,  3.75s/it]

71%|███████   | 596/834 [37:32<14:54,  3.76s/it]

72%|███████   | 597/834 [37:35<14:50,  3.76s/it]

72%|███████   | 598/834 [37:39<14:45,  3.75s/it]

72%|███████   | 599/834 [37:43<14:41,  3.75s/it]

72%|███████   | 600/834 [37:46<14:32,  3.73s/it]

72%|███████   | 601/834 [37:50<14:30,  3.73s/it]

72%|███████   | 602/834 [37:54<14:29,  3.75s/it]

72%|███████   | 603/834 [37:58<14:26,  3.75s/it]

72%|███████   | 604/834 [38:02<14:23,  3.75s/it]
```

73%|███████▎ | 605/834 [38:05<14:21, 3.76s/it]

73%|███████▎ | 606/834 [38:09<14:19, 3.77s/it]

73%|███████▎ | 607/834 [38:13<14:16, 3.77s/it]

73%|███████▎ | 608/834 [38:17<14:13, 3.78s/it]

73%|███████▎ | 609/834 [38:20<14:08, 3.77s/it]

73%|███████▎ | 610/834 [38:24<14:02, 3.76s/it]

73%|███████▎ | 611/834 [38:28<13:59, 3.77s/it]

73%|███████▎ | 612/834 [38:32<13:57, 3.77s/it]

74%|███████▎ | 613/834 [38:36<13:56, 3.78s/it]

74%|███████▎ | 614/834 [38:39<13:50, 3.78s/it]

74%|███████▎ | 615/834 [38:43<13:47, 3.78s/it]

74%|███████▎ | 616/834 [38:47<13:42, 3.77s/it]

74%|███████▎ | 617/834 [38:51<13:38, 3.77s/it]

74%|███████▎ | 618/834 [38:54<13:35, 3.78s/it]

```
74%|███████▍  | 619/834 [38:58<13:30,  3.77s/it]
74%|███████▍  | 620/834 [39:02<13:28,  3.78s/it]
74%|███████▍  | 621/834 [39:06<13:25,  3.78s/it]
75%|███████▍  | 622/834 [39:09<13:19,  3.77s/it]
75%|███████▍  | 623/834 [39:13<13:13,  3.76s/it]
75%|███████▍  | 624/834 [39:17<13:12,  3.77s/it]
75%|███████▍  | 625/834 [39:21<13:08,  3.77s/it]
75%|███████▌  | 626/834 [39:24<13:01,  3.76s/it]
75%|███████▌  | 627/834 [39:28<12:55,  3.75s/it]
75%|███████▌  | 628/834 [39:32<12:54,  3.76s/it]
75%|███████▌  | 629/834 [39:36<12:50,  3.76s/it]
76%|███████▌  | 630/834 [39:39<12:45,  3.75s/it]
76%|███████▌  | 631/834 [39:43<12:43,  3.76s/it]
76%|███████▌  | 632/834 [39:47<12:39,  3.76s/it]
```

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76%|███████▌  | 633/834 [39:51<12:34,  3.75s/it]

76%|███████▌  | 634/834 [39:55<12:33,  3.77s/it]

76%|███████▌  | 635/834 [39:58<12:29,  3.77s/it]

76%|███████▌  | 636/834 [40:02<12:25,  3.76s/it]

76%|███████▌  | 637/834 [40:06<12:20,  3.76s/it]

76%|███████▌  | 638/834 [40:10<12:16,  3.76s/it]

77%|███████▌  | 639/834 [40:13<12:12,  3.76s/it]

77%|███████▌  | 640/834 [40:17<12:11,  3.77s/it]

77%|███████▌  | 641/834 [40:21<12:06,  3.76s/it]

77%|███████▌  | 642/834 [40:25<12:01,  3.76s/it]

77%|███████▌  | 643/834 [40:28<11:58,  3.76s/it]

77%|███████▌  | 644/834 [40:32<11:55,  3.77s/it]

77%|███████▌  | 645/834 [40:36<11:51,  3.77s/it]

77%|███████▌  | 646/834 [40:40<11:47,  3.76s/it]

78%|███████▌  | 647/834 [40:43<11:43,  3.76s/it]
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78%|███████▊ | 648/834 [40:47<11:39, 3.76s/it]

78%|███████▊ | 649/834 [40:51<11:36, 3.76s/it]

78%|███████▊ | 650/834 [40:55<11:34, 3.77s/it]

78%|███████▊ | 651/834 [40:59<11:32, 3.78s/it]

78%|███████▊ | 652/834 [41:02<11:26, 3.77s/it]

78%|███████▊ | 653/834 [41:06<11:21, 3.76s/it]

78%|███████▊ | 654/834 [41:10<11:17, 3.77s/it]

79%|███████▊ | 655/834 [41:14<11:14, 3.77s/it]

79%|███████▊ | 656/834 [41:17<11:12, 3.78s/it]

79%|███████▊ | 657/834 [41:21<11:08, 3.78s/it]

79%|███████▊ | 658/834 [41:25<11:03, 3.77s/it]

79%|███████▊ | 659/834 [41:29<10:59, 3.77s/it]

79%|███████▊ | 660/834 [41:33<10:55, 3.77s/it]

79%|███████▊ | 661/834 [41:36<10:51, 3.77s/it]

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79%|███████▉  | 662/834 [41:40<10:46,  3.76s/it]

79%|███████▉  | 663/834 [41:44<10:42,  3.76s/it]

80%|███████▉  | 664/834 [41:48<10:40,  3.77s/it]

80%|███████▉  | 665/834 [41:51<10:36,  3.77s/it]

80%|███████▉  | 666/834 [41:55<10:35,  3.78s/it]

80%|███████▉  | 667/834 [41:59<10:31,  3.78s/it]

80%|████████  | 668/834 [42:03<10:29,  3.79s/it]

80%|████████  | 669/834 [42:06<10:23,  3.78s/it]

80%|████████  | 670/834 [42:10<10:20,  3.78s/it]

80%|████████  | 671/834 [42:14<10:17,  3.79s/it]

81%|████████  | 672/834 [42:18<10:13,  3.79s/it]

81%|████████  | 673/834 [42:22<10:08,  3.78s/it]

81%|████████  | 674/834 [42:25<10:01,  3.76s/it]

81%|████████  | 675/834 [42:29<09:57,  3.76s/it]

81%|████████  | 676/834 [42:33<09:51,  3.75s/it]
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81%|████████  | 677/834 [42:36<09:45,  3.73s/it]

81%|████████  | 678/834 [42:40<09:40,  3.72s/it]

81%|████████  | 679/834 [42:44<09:35,  3.71s/it]

82%|████████  | 680/834 [42:48<09:30,  3.70s/it]

82%|████████  | 681/834 [42:51<09:27,  3.71s/it]

82%|████████  | 682/834 [42:55<09:23,  3.71s/it]

82%|████████  | 683/834 [42:59<09:21,  3.72s/it]

82%|████████  | 684/834 [43:02<09:17,  3.72s/it]

82%|████████  | 685/834 [43:06<09:13,  3.71s/it]

82%|████████  | 686/834 [43:10<09:08,  3.71s/it]

82%|████████  | 687/834 [43:14<09:04,  3.70s/it]

82%|████████  | 688/834 [43:17<09:00,  3.70s/it]

83%|████████  | 689/834 [43:21<08:59,  3.72s/it]

83%|████████  | 690/834 [43:25<08:55,  3.72s/it]
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83%|████████▎ | 691/834 [43:28<08:51,  3.71s/it]
83%|████████▎ | 692/834 [43:32<08:45,  3.70s/it]
83%|████████▎ | 693/834 [43:36<08:43,  3.71s/it]
83%|████████▎ | 694/834 [43:40<08:39,  3.71s/it]
83%|████████▎ | 695/834 [43:43<08:35,  3.71s/it]
83%|████████▎ | 696/834 [43:47<08:30,  3.70s/it]
84%|████████▎ | 697/834 [43:51<08:28,  3.71s/it]
84%|████████▎ | 698/834 [43:54<08:27,  3.73s/it]
84%|████████▎ | 699/834 [43:58<08:24,  3.74s/it]
84%|████████▎ | 700/834 [44:02<08:22,  3.75s/it]
84%|████████▎ | 701/834 [44:06<08:19,  3.76s/it]
84%|████████▎ | 702/834 [44:10<08:19,  3.78s/it]
84%|████████▎ | 703/834 [44:13<08:13,  3.77s/it]
84%|████████▎ | 704/834 [44:17<08:09,  3.77s/it]
```

85%|████████▌ | 705/834 [44:21<08:06, 3.77s/it]

85%|████████▌ | 706/834 [44:25<08:02, 3.77s/it]

85%|████████▌ | 707/834 [44:28<07:58, 3.77s/it]

85%|████████▌ | 708/834 [44:32<07:53, 3.76s/it]

85%|████████▌ | 709/834 [44:36<07:50, 3.76s/it]

85%|████████▌ | 710/834 [44:40<07:46, 3.76s/it]

85%|████████▌ | 711/834 [44:43<07:41, 3.75s/it]

85%|████████▌ | 712/834 [44:47<07:37, 3.75s/it]

85%|████████▌ | 713/834 [44:51<07:33, 3.75s/it]

86%|████████▌ | 714/834 [44:55<07:29, 3.75s/it]

86%|████████▌ | 715/834 [44:58<07:26, 3.75s/it]

86%|████████▌ | 716/834 [45:02<07:23, 3.76s/it]

86%|████████▌ | 717/834 [45:06<07:19, 3.76s/it]

86%|████████▌ | 718/834 [45:10<07:16, 3.76s/it]

86%|████████▌ | 719/834 [45:13<07:14, 3.78s/it]

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86%|████████▋ | 720/834 [45:17<07:08,  3.76s/it]

86%|████████▋ | 721/834 [45:21<07:06,  3.77s/it]

87%|████████▋ | 722/834 [45:25<07:01,  3.76s/it]

87%|████████▋ | 723/834 [45:28<06:56,  3.75s/it]

87%|████████▋ | 724/834 [45:32<06:52,  3.75s/it]

87%|████████▋ | 725/834 [45:36<06:48,  3.75s/it]

87%|████████▋ | 726/834 [45:40<06:46,  3.76s/it]

87%|████████▋ | 727/834 [45:44<06:41,  3.76s/it]

87%|████████▋ | 728/834 [45:47<06:37,  3.75s/it]

87%|████████▋ | 729/834 [45:51<06:34,  3.76s/it]

88%|████████▊ | 730/834 [45:55<06:31,  3.77s/it]

88%|████████▊ | 731/834 [45:59<06:29,  3.78s/it]

88%|████████▊ | 732/834 [46:02<06:25,  3.78s/it]

88%|████████▊ | 733/834 [46:06<06:21,  3.77s/it]
```

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88%|▉| 734/834 [46:10<06:15,  3.76s/it]
88%|▉| 735/834 [46:14<06:12,  3.77s/it]
88%|▉| 736/834 [46:17<06:09,  3.77s/it]
88%|▉| 737/834 [46:21<06:06,  3.77s/it]
88%|▉| 738/834 [46:25<06:01,  3.77s/it]
89%|▉| 739/834 [46:29<05:57,  3.76s/it]
89%|▉| 740/834 [46:33<05:55,  3.78s/it]
89%|▉| 741/834 [46:36<05:51,  3.78s/it]
89%|▉| 742/834 [46:40<05:46,  3.77s/it]
89%|▉| 743/834 [46:44<05:42,  3.77s/it]
89%|▉| 744/834 [46:48<05:40,  3.78s/it]
89%|▉| 745/834 [46:51<05:37,  3.80s/it]
89%|▉| 746/834 [46:55<05:34,  3.80s/it]
90%|▉| 747/834 [46:59<05:32,  3.83s/it]
90%|▉| 748/834 [47:03<05:30,  3.84s/it]
```

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90%|████████▉ | 749/834 [47:07<05:27,  3.85s/it]

90%|████████▉ | 750/834 [47:11<05:22,  3.84s/it]

90%|████████▉ | 751/834 [47:15<05:19,  3.85s/it]

90%|████████▉ | 752/834 [47:18<05:15,  3.85s/it]

90%|████████▉ | 753/834 [47:22<05:11,  3.84s/it]

90%|████████▉ | 754/834 [47:26<05:08,  3.85s/it]

91%|████████▉ | 755/834 [47:30<05:05,  3.87s/it]

91%|████████▉ | 756/834 [47:34<05:00,  3.86s/it]

91%|████████▉ | 757/834 [47:38<04:56,  3.86s/it]

91%|████████▉ | 758/834 [47:42<04:53,  3.86s/it]

91%|████████▉ | 759/834 [47:45<04:49,  3.86s/it]

91%|████████▉ | 760/834 [47:49<04:45,  3.86s/it]

91%|████████▉ | 761/834 [47:53<04:42,  3.87s/it]

91%|████████▉ | 762/834 [47:57<04:38,  3.87s/it]
```

91%|▉| 763/834 [48:01<04:34, 3.87s/it]

92%|▉| 764/834 [48:05<04:31, 3.88s/it]

92%|▉| 765/834 [48:09<04:27, 3.87s/it]

92%|▉| 766/834 [48:13<04:23, 3.87s/it]

92%|▉| 767/834 [48:16<04:19, 3.88s/it]

92%|▉| 768/834 [48:20<04:15, 3.86s/it]

92%|▉| 769/834 [48:24<04:11, 3.86s/it]

92%|▉| 770/834 [48:28<04:07, 3.86s/it]

92%|▉| 771/834 [48:32<04:03, 3.87s/it]

93%|▉| 772/834 [48:36<04:01, 3.89s/it]

93%|▉| 773/834 [48:40<03:57, 3.89s/it]

93%|▉| 774/834 [48:44<03:53, 3.89s/it]

93%|▉| 775/834 [48:48<03:48, 3.88s/it]

93%|▉| 776/834 [48:51<03:44, 3.87s/it]

93%|▉| 777/834 [48:55<03:41, 3.88s/it]

93%|[redacted]| 777/834 [48:55<03:41,  3.88s/it]

93%|[redacted]| 778/834 [48:59<03:36,  3.87s/it]

93%|[redacted]| 779/834 [49:03<03:32,  3.87s/it]

94%|[redacted]| 780/834 [49:07<03:28,  3.87s/it]

94%|[redacted]| 781/834 [49:11<03:25,  3.87s/it]

94%|[redacted]| 782/834 [49:15<03:21,  3.87s/it]

94%|[redacted]| 783/834 [49:18<03:17,  3.87s/it]

94%|[redacted]| 784/834 [49:22<03:13,  3.86s/it]

94%|[redacted]| 785/834 [49:26<03:09,  3.87s/it]

94%|[redacted]| 786/834 [49:30<03:05,  3.86s/it]

94%|[redacted]| 787/834 [49:34<03:01,  3.86s/it]

94%|[redacted]| 788/834 [49:38<02:57,  3.85s/it]

95%|[redacted]| 789/834 [49:42<02:53,  3.85s/it]

95%|[redacted]| 790/834 [49:45<02:49,  3.86s/it]

95%|[redacted]| 791/834 [49:49<02:46,  3.87s/it]

95%|▉ | 792/834 [49:53<02:42, 3.86s/it]

95%|▉ | 793/834 [49:57<02:38, 3.86s/it]

95%|▉ | 794/834 [50:01<02:34, 3.87s/it]

95%|▉ | 795/834 [50:05<02:31, 3.88s/it]

95%|▉ | 796/834 [50:09<02:27, 3.88s/it]

96%|▉ | 797/834 [50:13<02:23, 3.88s/it]

96%|▉ | 798/834 [50:17<02:19, 3.88s/it]

96%|▉ | 799/834 [50:20<02:15, 3.86s/it]

96%|▉ | 800/834 [50:24<02:11, 3.87s/it]

96%|▉ | 801/834 [50:28<02:07, 3.87s/it]

96%|▉ | 802/834 [50:32<02:03, 3.86s/it]

96%|▉ | 803/834 [50:36<01:59, 3.87s/it]

96%|▉ | 804/834 [50:40<01:55, 3.86s/it]

97%|▉ | 805/834 [50:44<01:51, 3.86s/it]

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97%|▉| 806/834 [50:47<01:48,  3.87s/it]

97%|▉| 807/834 [50:51<01:44,  3.87s/it]

97%|▉| 808/834 [50:55<01:40,  3.87s/it]

97%|▉| 809/834 [50:59<01:36,  3.88s/it]

97%|▉| 810/834 [51:03<01:33,  3.88s/it]

97%|▉| 811/834 [51:07<01:29,  3.88s/it]

97%|▉| 812/834 [51:11<01:25,  3.88s/it]

97%|▉| 813/834 [51:15<01:21,  3.89s/it]

98%|▉| 814/834 [51:18<01:17,  3.89s/it]

98%|▉| 815/834 [51:22<01:13,  3.89s/it]

98%|▉| 816/834 [51:26<01:09,  3.88s/it]

98%|▉| 817/834 [51:30<01:05,  3.88s/it]

98%|▉| 818/834 [51:34<01:02,  3.88s/it]

98%|▉| 819/834 [51:38<00:58,  3.88s/it]

98%|▉| 820/834 [51:42<00:54,  3.88s/it]
```

```
98%|█████████▊ | 821/834 [51:46<00:50,  3.88s/it]


99%|█████████▊ | 822/834 [51:50<00:46,  3.88s/it]
```

```
# Concatenate predictions and create submission file
submission = pd.read_csv("sample_submission.csv")
submission["meter_reading"] = result
submission.to_csv("submission.csv", index = False)
```

```
!kaggle competitions submit -c ashrae-energy-prediction -f 'submission.csv' -m "LGBM"
```

```
Warning: Looks like you're using an outdated API Version, please consider updating (serv
100% 1.06G/1.06G [00:32<00:00, 34.9MB/s]
Successfully submitted to ASHRAE - Great Energy Predictor III
```