In [2]:
```
pip install kagglehub
```

```
Collecting kagglehub
  Downloading kagglehub-0.3.13-py3-none-any.whl.metadata (38 kB)
Requirement already satisfied: packaging in c:\users\ria s\anaconda3\lib\site-pac
kages (from kagglehub) (24.2)
Requirement already satisfied: pyyaml in c:\users\ria s\anaconda3\lib\site-packag
es (from kagglehub) (6.0.2)
Requirement already satisfied: requests in c:\users\ria s\anaconda3\lib\site-pack
ages (from kagglehub) (2.32.3)
Requirement already satisfied: tqdm in c:\users\ria s\anaconda3\lib\site-packages
(from kagglehub) (4.67.1)
Requirement already satisfied: charset-normalizer<4,>=2 in c:\users\ria s\anacond
a3\lib\site-packages (from requests->kagglehub) (3.3.2)
Requirement already satisfied: idna<4,>=2.5 in c:\users\ria s\anaconda3\lib\site-
packages (from requests->kagglehub) (3.7)
Requirement already satisfied: urllib3<3,>=1.21.1 in c:\users\ria s\anaconda3\lib
\site-packages (from requests->kagglehub) (2.5.0)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\ria s\anaconda3\lib
\site-packages (from requests->kagglehub) (2025.10.5)
Requirement already satisfied: colorama in c:\users\ria s\anaconda3\lib\site-pack
ages (from tqdm->kagglehub) (0.4.6)
Downloading kagglehub-0.3.13-py3-none-any.whl (68 kB)
Installing collected packages: kagglehub
Successfully installed kagglehub-0.3.13
Note: you may need to restart the kernel to use updated packages.
```

In [7]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sb
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import LabelEncoder, StandardScaler
from sklearn import metrics
from sklearn.svm import SVC
from xgboost import XGBRegressor
from sklearn.linear_model import LinearRegression, Lasso, Ridge
from sklearn.ensemble import RandomForestRegressor
import kagglehub
import os
import warnings
warnings.filterwarnings('ignore')
```

In [16]:
```
path = kagglehub.dataset_download("ruchikakumbhar/calories-burnt-prediction")
csv_path = os.path.join(path, 'calories.csv')
df = pd.read_csv(csv_path)
df.head()
```

```
Downloading from https://www.kaggle.com/api/v1/datasets/download/ruchikakumbhar/c
alories-burnt-prediction?dataset_version_number=1...
100%|██████████| 236k/236k [00:01<00:00, 214kB/s]
Extracting files...
```

Out[16]:

	User_ID	Gender	Age	Height	Weight	Duration	Heart_Rate	Body_Temp	Calorie
0	14733363	male	68	190.0	94.0	29.0	105.0	40.8	231.
1	14861698	female	20	166.0	60.0	14.0	94.0	40.3	66.
2	11179863	male	69	179.0	79.0	5.0	88.0	38.7	26.
3	16180408	female	34	179.0	71.0	13.0	100.0	40.5	71.
4	17771927	female	27	154.0	58.0	10.0	81.0	39.8	35.

In [17]:
```
df.shape
```

Out[17]: (15000, 9)

In [18]:
```
df.info()
```

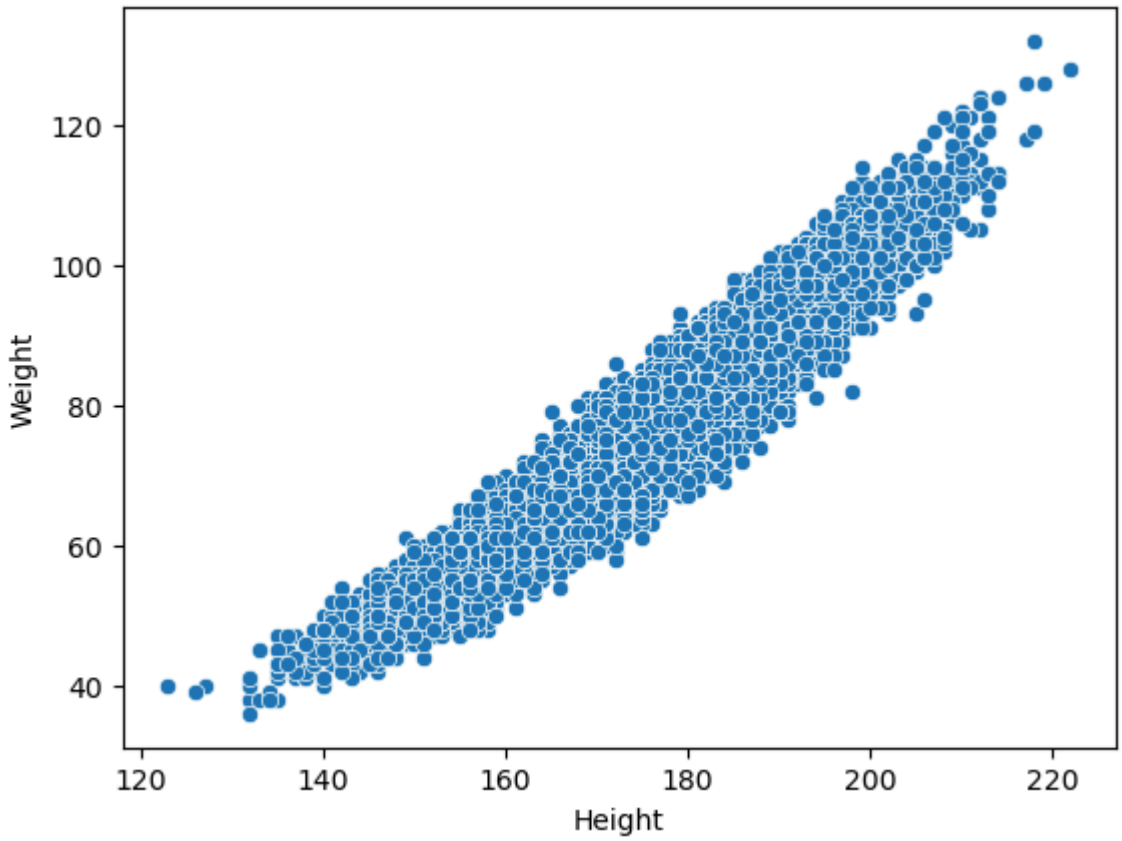
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 15000 entries, 0 to 14999
Data columns (total 9 columns):
 #   Column      Non-Null Count  Dtype  
---  ------      --------------  -----  
 0   User_ID     15000 non-null  int64  
 1   Gender      15000 non-null  object 
 2   Age         15000 non-null  int64  
 3   Height      15000 non-null  float64
 4   Weight      15000 non-null  float64
 5   Duration    15000 non-null  float64
 6   Heart_Rate  15000 non-null  float64
 7   Body_Temp   15000 non-null  float64
 8   Calories    15000 non-null  float64
dtypes: float64(6), int64(2), object(1)
memory usage: 1.0+ MB
```

In [19]:
```
df.describe()
```

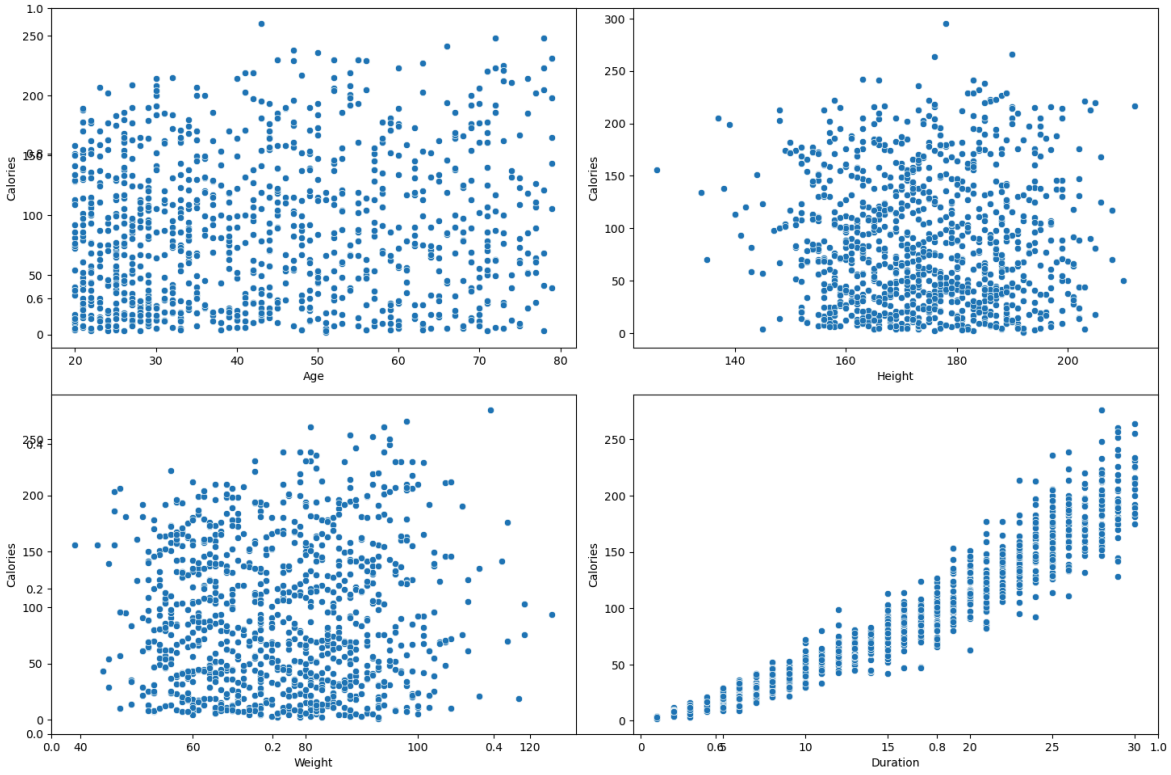
Out[19]:

	User_ID	Age	Height	Weight	Duration	Heart_I
count	1.500000e+04	15000.000000	15000.000000	15000.000000	15000.000000	15000.000
mean	1.497736e+07	42.789800	174.465133	74.966867	15.530600	95.518
std	2.872851e+06	16.980264	14.258114	15.035657	8.319203	9.583
min	1.000116e+07	20.000000	123.000000	36.000000	1.000000	67.000
25%	1.247419e+07	28.000000	164.000000	63.000000	8.000000	88.000
50%	1.499728e+07	39.000000	175.000000	74.000000	16.000000	96.000
75%	1.744928e+07	56.000000	185.000000	87.000000	23.000000	103.000
max	1.999965e+07	79.000000	222.000000	132.000000	30.000000	128.000

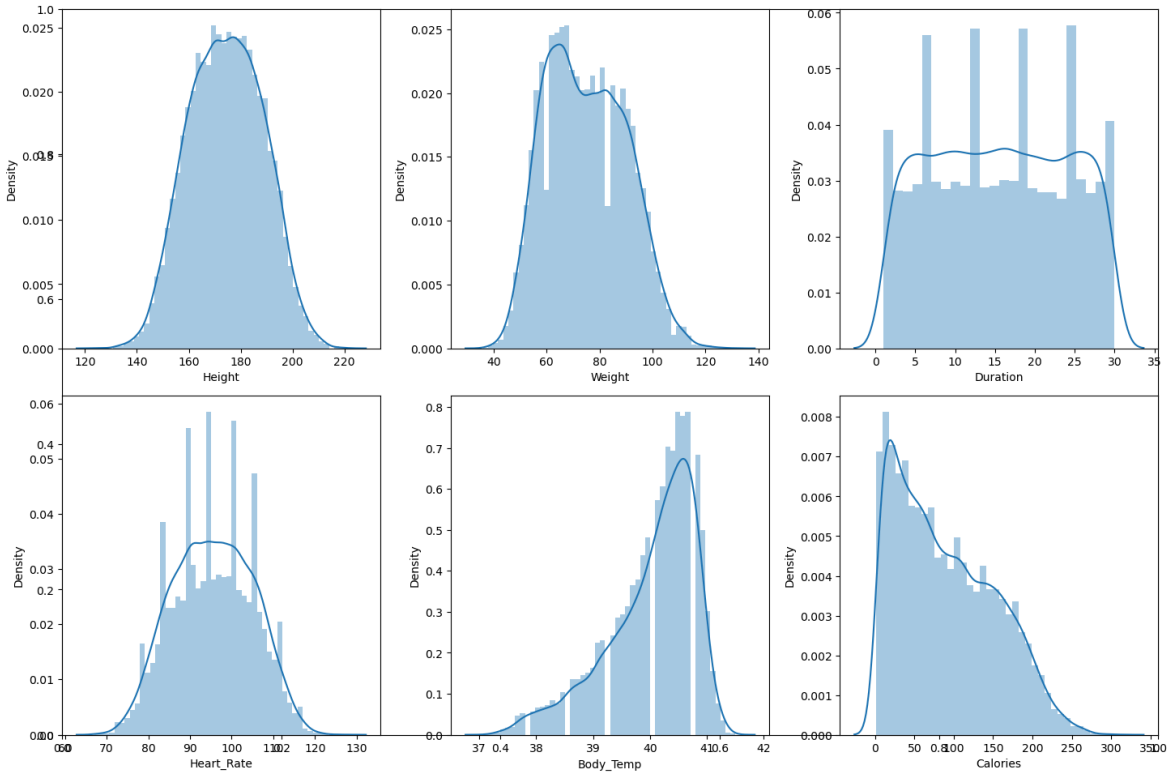
In [21]:
```
sb.scatterplot(x='Height', y='Weight', data=df)
plt.show()
```



In [25]:
```
features = ['Age', 'Height', 'Weight', 'Duration']
plt.subplots(figsize=(15, 10))
for i, col in enumerate(features):
    plt.subplot(2, 2, i + 1)
    x = df.sample(1000)
    sb.scatterplot(x=col, y='Calories', data=x)
plt.tight_layout()
plt.show()
```



In [26]:
```
features=df.select_dtypes(include='float').columns
plt.subplots(figsize=(15,10))
for i,col in enumerate(features):
    plt.subplot(2,3,i+1)
    sb.distplot(df[col])
plt.tight_layout()
plt.show()
```

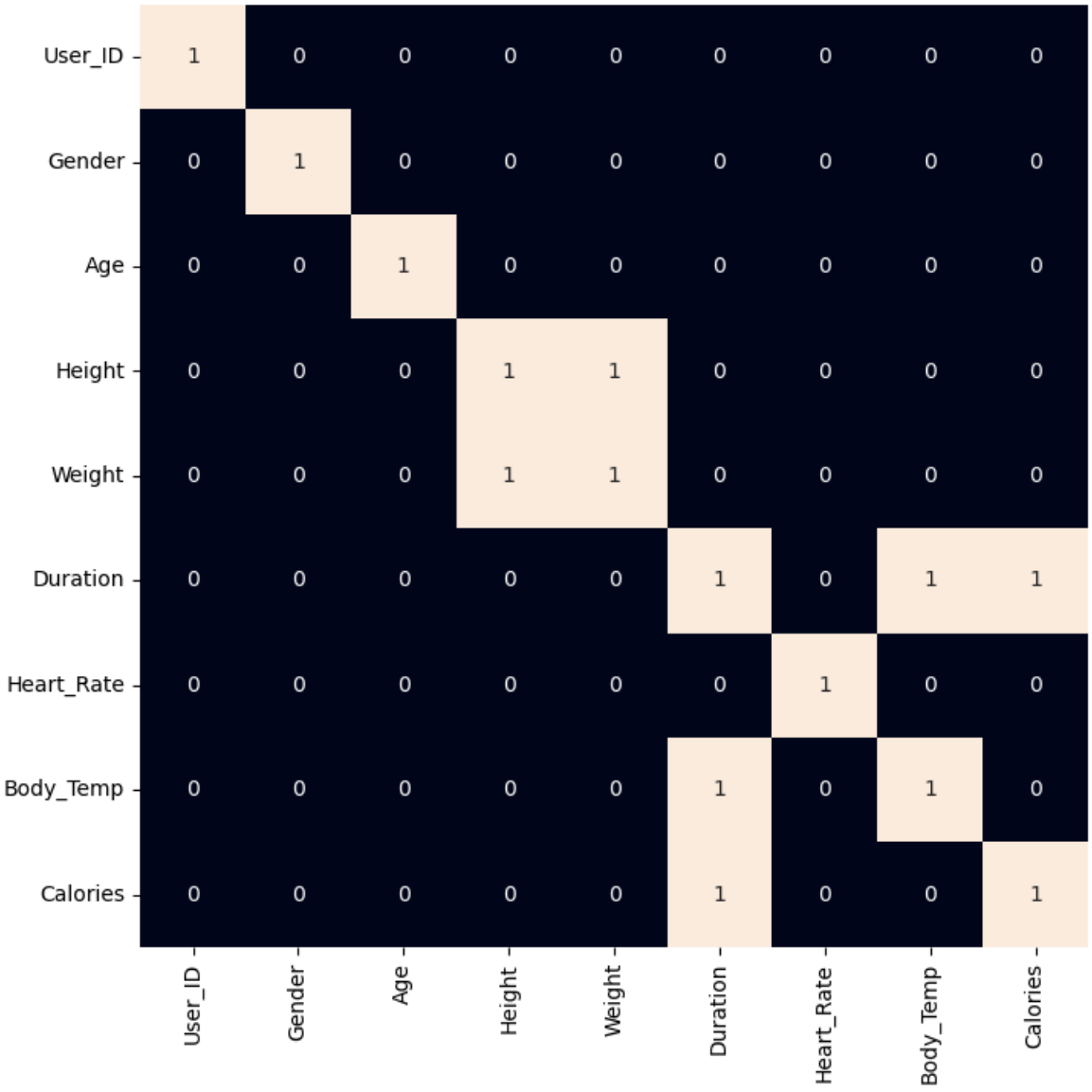


In [27]:
```
df.replace({'male':0,'female':1},inplace=True)
df.head()
```

Out[27]:

	User_ID	Gender	Age	Height	Weight	Duration	Heart_Rate	Body_Temp	Calorie
0	14733363	0	68	190.0	94.0	29.0	105.0	40.8	231.
1	14861698	1	20	166.0	60.0	14.0	94.0	40.3	66.
2	11179863	0	69	179.0	79.0	5.0	88.0	38.7	26.
3	16180408	1	34	179.0	71.0	13.0	100.0	40.5	71.
4	17771927	1	27	154.0	58.0	10.0	81.0	39.8	35.

In [28]:
```
plt.figure(figsize=(8,8))
sb.heatmap(df.corr()>0.9,
           annot=True,
           cbar=False)
plt.show()
```



In [29]:
```
to_remove=['Weight','Duration']
df.drop(to_remove,axis=1,inplace=True)
```

In [30]:
```
features = df.drop(['User_ID', 'Calories'], axis=1)
target = df['Calories'].values

X_train, X_val,\
    Y_train, Y_val = train_test_split(features, target,
                                      test_size=0.1,
                                      random_state=22)
X_train.shape, X_val.shape
```

Out[30]: ((13500, 5), (1500, 5))

In [31]:
```
scaler = StandardScaler()
X_train = scaler.fit_transform(X_train)
X_val = scaler.transform(X_val)
```

In [32]:
```
from sklearn.metrics import mean_absolute_error as mae
models = [LinearRegression(), XGBRegressor(),
          Lasso(), RandomForestRegressor(), Ridge()]

for i in range(5):
```

```
    models[i].fit(X_train, Y_train)

    print(f'{models[i]} : ')

    train_preds = models[i].predict(X_train)
    print('Training Error : ', mae(Y_train, train_preds))

    val_preds = models[i].predict(X_val)
    print('Validation Error : ', mae(Y_val, val_preds))
    print()
```

```
LinearRegression() :
Training Error :  17.893463692619434
Validation Error :  18.007896272831253

XGBRegressor(base_score=None, booster=None, callbacks=None,
             colsample_bylevel=None, colsample_bynode=None,
             colsample_bytree=None, device=None, early_stopping_rounds=None,
             enable_categorical=False, eval_metric=None, feature_types=None,
             feature_weights=None, gamma=None, grow_policy=None,
             importance_type=None, interaction_constraints=None,
             learning_rate=None, max_bin=None, max_cat_threshold=None,
             max_cat_to_onehot=None, max_delta_step=None, max_depth=None,
             max_leaves=None, min_child_weight=None, missing=nan,
             monotone_constraints=None, multi_strategy=None, n_estimators=None,
             n_jobs=None, num_parallel_tree=None, ...) :
Training Error :  7.89463304294701
Validation Error :  10.12050432946533

Lasso() :
Training Error :  17.915089584958036
Validation Error :  17.99503336228866

RandomForestRegressor() :
Training Error :  3.9765155731922404
Validation Error :  10.503319000000001

Ridge() :
Training Error :  17.893530494767777
Validation Error :  18.00781790803129
```

In [ ]: