Model: "sequential"

Layer (type)	Output Shape	Param #
lstm (LSTM)	(None, 100, 32)	4352
lstm_1 (LSTM)	(None, 16)	3136
dense (Dense)	(None, 20)	340

Total params: 7,828
Trainable params: 7,828
Non-trainable params: 0

Training Model for CA_1...

Epoch 1/100
50/50 [==============================] - 5s 105ms/step - loss: 0.7785 - val_loss: 0.7210
Epoch 2/100
50/50 [==============================] - 5s 96ms/step - loss: 0.7737 - val_loss: 0.7230
Epoch 3/100
50/50 [==============================] - 5s 96ms/step - loss: 0.7682 - val_loss: 0.7249
Epoch 4/100
50/50 [==============================] - 5s 94ms/step - loss: 0.7572 - val_loss: 0.7250
Epoch 5/100
50/50 [==============================] - 5s 95ms/step - loss: 0.7420 - val_loss: 0.7222
Epoch 6/100
50/50 [==============================] - 5s 93ms/step - loss: 0.7264 - val_loss: 0.7202
Epoch 7/100
50/50 [==============================] - 5s 95ms/step - loss: 0.7142 - val_loss: 0.7178
Epoch 8/100
50/50 [==============================] - 5s 93ms/step - loss: 0.7075 - val_loss: 0.7158
Epoch 9/100
50/50 [==============================] - 5s 94ms/step - loss: 0.7042 - val_loss: 0.7149
Epoch 10/100
50/50 [==============================] - 5s 94ms/step - loss: 0.7017 - val_loss: 0.7145
Epoch 11/100
50/50 [==============================] - 5s 96ms/step - loss: 0.7000 - val_loss: 0.7145
Epoch 12/100
50/50 [==============================] - 5s 94ms/step - loss: 0.6986 - val_loss: 0.7145
Epoch 13/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6979 - val_loss: 0.7145
Epoch 14/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6968 - val_loss: 0.7142
Epoch 15/100
50/50 [==============================] - 5s 94ms/step - loss: 0.6957 - val_loss: 0.7140
Epoch 16/100

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50/50 [==============================] - 5s 94ms/step - loss: 0.6956 - val_loss: 0.7141
Epoch 17/100
50/50 [==============================] - 5s 96ms/step - loss: 0.6950 - val_loss: 0.7135
Epoch 18/100
50/50 [==============================] - 5s 95ms/step - loss: 0.6943 - val_loss: 0.7131
Epoch 19/100
50/50 [==============================] - 5s 94ms/step - loss: 0.6934 - val_loss: 0.7126
Epoch 20/100
50/50 [==============================] - 5s 95ms/step - loss: 0.6927 - val_loss: 0.7121
Epoch 21/100
50/50 [==============================] - 5s 96ms/step - loss: 0.6918 - val_loss: 0.7116
Epoch 22/100
50/50 [==============================] - 5s 96ms/step - loss: 0.6914 - val_loss: 0.7112
Epoch 23/100
50/50 [==============================] - 5s 95ms/step - loss: 0.6918 - val_loss: 0.7103
Epoch 24/100
50/50 [==============================] - 5s 95ms/step - loss: 0.6887 - val_loss: 0.7089
Epoch 25/100
50/50 [==============================] - 5s 94ms/step - loss: 0.6898 - val_loss: 0.7080
Epoch 26/100
50/50 [==============================] - 5s 94ms/step - loss: 0.6876 - val_loss: 0.7068
Epoch 27/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6864 - val_loss: 0.7052
Epoch 28/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6854 - val_loss: 0.7033
Epoch 29/100
50/50 [==============================] - 5s 95ms/step - loss: 0.6826 - val_loss: 0.7017
Epoch 30/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6809 - val_loss: 0.6978
Epoch 31/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6774 - val_loss: 0.6949
Epoch 32/100
50/50 [==============================] - 5s 93ms/step - loss: 0.6735 - val_loss: 0.6909
Epoch 33/100
50/50 [==============================] - 5s 94ms/step - loss: 0.6640 - val_loss: 0.6800
Epoch 34/100
50/50 [==============================] - 5s 94ms/step - loss: 0.6459 - val_loss: 0.6498
Epoch 35/100
50/50 [==============================] - 5s 96ms/step - loss: 0.5870 - val_loss: 0.5272
Epoch 36/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4819 - val_loss: 0.4332
Epoch 37/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4334 - val_loss: 0.4449
Epoch 38/100
50/50 [==============================] - 5s 96ms/step - loss: 0.4147 - val_loss: 0.4178
Epoch 39/100
50/50 [==============================] - 5s 96ms/step - loss: 0.4042 - val_loss: 0.4064
Epoch 40/100
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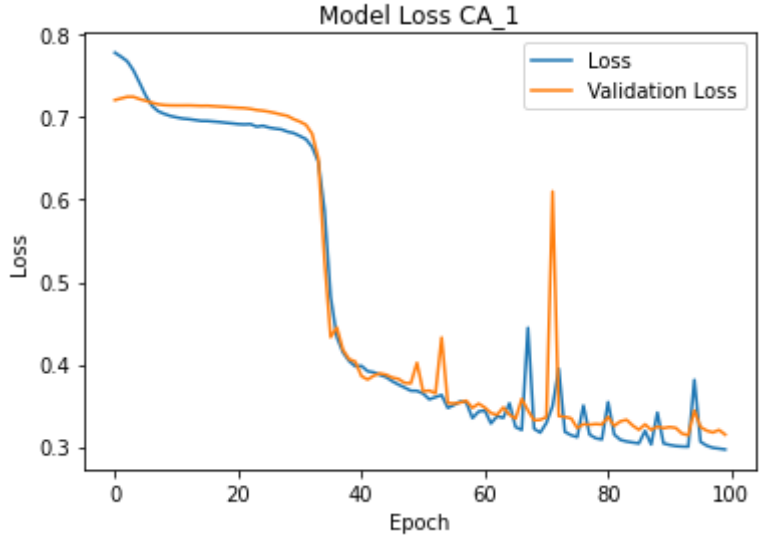
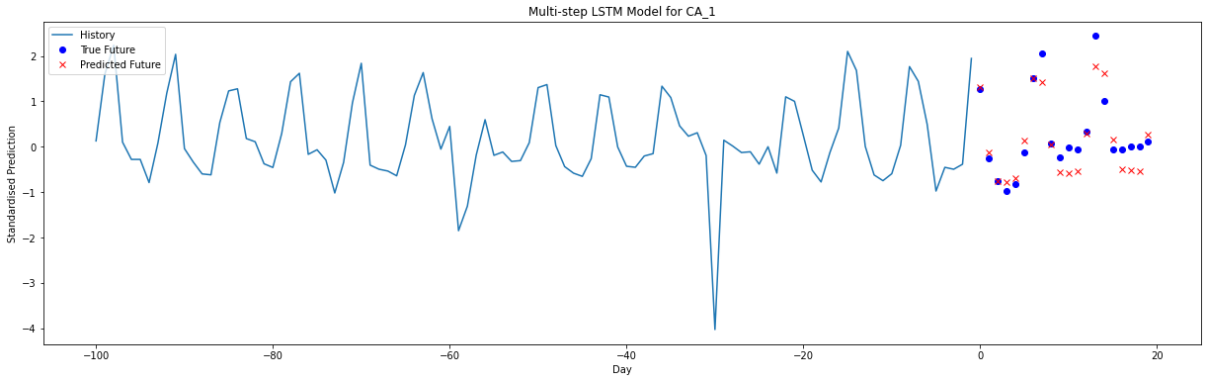
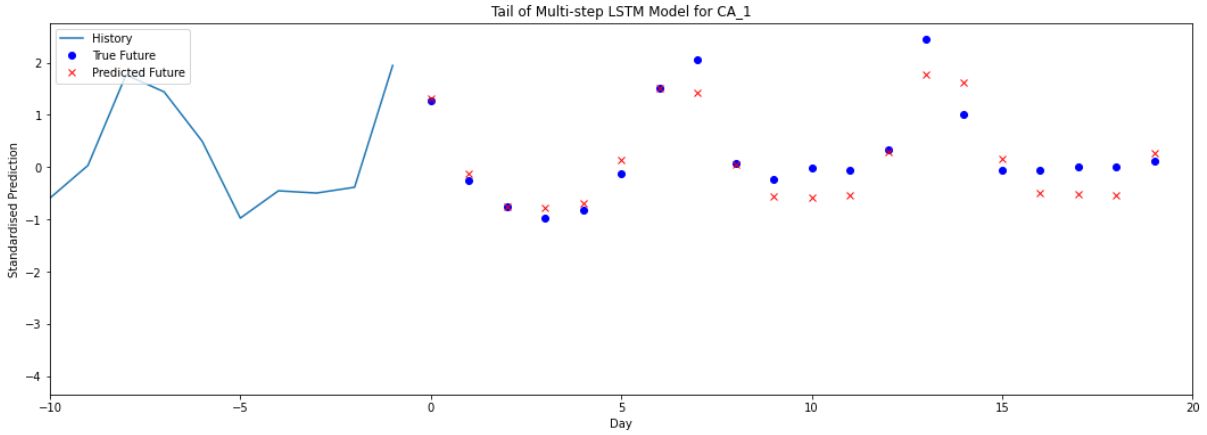
50/50 [==============================] - 5s 95ms/step - loss: 0.3977 - val_loss: 0.4035
Epoch 41/100
50/50 [==============================] - 5s 94ms/step - loss: 0.3983 - val_loss: 0.3859
Epoch 42/100
50/50 [==============================] - 5s 94ms/step - loss: 0.3918 - val_loss: 0.3817
Epoch 43/100
50/50 [==============================] - 5s 95ms/step - loss: 0.3905 - val_loss: 0.3865
Epoch 44/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3874 - val_loss: 0.3891
Epoch 45/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3847 - val_loss: 0.3876
Epoch 46/100
50/50 [==============================] - 5s 95ms/step - loss: 0.3797 - val_loss: 0.3841
Epoch 47/100
50/50 [==============================] - 5s 94ms/step - loss: 0.3756 - val_loss: 0.3825
Epoch 48/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3720 - val_loss: 0.3777
Epoch 49/100
50/50 [==============================] - 5s 95ms/step - loss: 0.3682 - val_loss: 0.3771
Epoch 50/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3680 - val_loss: 0.4020
Epoch 51/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3647 - val_loss: 0.3673
Epoch 52/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3577 - val_loss: 0.3683
Epoch 53/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3604 - val_loss: 0.3650
Epoch 54/100
50/50 [==============================] - 5s 94ms/step - loss: 0.3629 - val_loss: 0.4327
Epoch 55/100
50/50 [==============================] - 5s 94ms/step - loss: 0.3473 - val_loss: 0.3533
Epoch 56/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3508 - val_loss: 0.3526
Epoch 57/100
50/50 [==============================] - 5s 94ms/step - loss: 0.3551 - val_loss: 0.3537
Epoch 58/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3540 - val_loss: 0.3561
Epoch 59/100
50/50 [==============================] - 5s 95ms/step - loss: 0.3349 - val_loss: 0.3474
Epoch 60/100
50/50 [==============================] - 5s 93ms/step - loss: 0.3428 - val_loss: 0.3525
Epoch 61/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3443 - val_loss: 0.3478
Epoch 62/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3284 - val_loss: 0.3410
Epoch 63/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3372 - val_loss: 0.3389
Epoch 64/100

50/50 [==============================] - 5s 97ms/step - loss: 0.3352 - val_loss: 0.3479
Epoch 65/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3529 - val_loss: 0.3392
Epoch 66/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3240 - val_loss: 0.3341
Epoch 67/100
50/50 [==============================] - 7s 142ms/step - loss: 0.3205 - val_loss: 0.3582
Epoch 68/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4445 - val_loss: 0.3443
Epoch 69/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3219 - val_loss: 0.3323
Epoch 70/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3173 - val_loss: 0.3328
Epoch 71/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3291 - val_loss: 0.3361
Epoch 72/100
50/50 [==============================] - 5s 95ms/step - loss: 0.3496 - val_loss: 0.6100
Epoch 73/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3948 - val_loss: 0.3376
Epoch 74/100
50/50 [==============================] - 6s 119ms/step - loss: 0.3182 - val_loss: 0.3363
Epoch 75/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3142 - val_loss: 0.3347
Epoch 76/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3118 - val_loss: 0.3230
Epoch 77/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3502 - val_loss: 0.3276
Epoch 78/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3149 - val_loss: 0.3269
Epoch 79/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3105 - val_loss: 0.3277
Epoch 80/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3090 - val_loss: 0.3272
Epoch 81/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3543 - val_loss: 0.3363
Epoch 82/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3150 - val_loss: 0.3255
Epoch 83/100
50/50 [==============================] - 5s 95ms/step - loss: 0.3085 - val_loss: 0.3310
Epoch 84/100
50/50 [==============================] - 5s 95ms/step - loss: 0.3066 - val_loss: 0.3329
Epoch 85/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3053 - val_loss: 0.3259
Epoch 86/100
50/50 [==============================] - 5s 95ms/step - loss: 0.3042 - val_loss: 0.3207
Epoch 87/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3194 - val_loss: 0.3273
Epoch 88/100

50/50 [==============================] - 5s 95ms/step - loss: 0.3030 - val_loss: 0.3206
Epoch 89/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3416 - val_loss: 0.3245
Epoch 90/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3042 - val_loss: 0.3228
Epoch 91/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3023 - val_loss: 0.3240
Epoch 92/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3010 - val_loss: 0.3230
Epoch 93/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3004 - val_loss: 0.3161
Epoch 94/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3002 - val_loss: 0.3141
Epoch 95/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3813 - val_loss: 0.3442
Epoch 96/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3062 - val_loss: 0.3241
Epoch 97/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3015 - val_loss: 0.3197
Epoch 98/100
50/50 [==============================] - 5s 98ms/step - loss: 0.2989 - val_loss: 0.3175
Epoch 99/100
50/50 [==============================] - 5s 99ms/step - loss: 0.2979 - val_loss: 0.3205
Epoch 100/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2968 - val_loss: 0.3149







CA_1 - True Future: [5247. 3741. 3246. 3031. 3173. 3871. 5498. 6032. 4075. 3765. 3983. 3928.
 4327. 6412. 4986. 3933. 3936. 3995. 4007. 4111.]
CA_1 - Model Prediction: [5297.7705 3869.7148 3251.8677 3229.2107 3307.641 4135.6143
5489.141
 5408.6123 4048.81   3436.8245 3415.849 3457.141 4290.7075 5746.8857
 5592.803 4154.2793 3493.5715 3481.8591 3470.105 4249.8003]
CA_1 - Model Percentage Error: [0.96761021 3.4406534   0.18076635 6.53944881 4.24333795
6.83581136
  0.16112926 10.33467665 0.64269795 8.71648173 14.23928895 11.98724253
  0.83874464 10.37296098 12.17014085 5.62622163 11.24056064 12.84457745
 13.39892737 3.37631459]%
CA_1 - Model Mean Percentage Error: 6.90787966515976%
==================================
==================================
Model: "sequential_1"

Layer (type)	Output Shape	Param #
lstm_2 (LSTM)	(None, 100, 32)	4352
lstm_3 (LSTM)	(None, 16)	3136
dense_1 (Dense)	(None, 20)	340

Total params: 7,828
Trainable params: 7,828

Non-trainable params: 0
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Training Model for CA_2...

Epoch 1/100
50/50 [==============================] - 6s 112ms/step - loss: 0.7871 - val_loss: 1.8611
Epoch 2/100
50/50 [==============================] - 5s 98ms/step - loss: 0.7721 - val_loss: 1.8787
Epoch 3/100
50/50 [==============================] - 5s 100ms/step - loss: 0.7520 - val_loss: 1.8782
Epoch 4/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7357 - val_loss: 1.8630
Epoch 5/100
50/50 [==============================] - 5s 100ms/step - loss: 0.7240 - val_loss: 1.8408
Epoch 6/100
50/50 [==============================] - 5s 100ms/step - loss: 0.7188 - val_loss: 1.8175
Epoch 7/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7159 - val_loss: 1.7944
Epoch 8/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7126 - val_loss: 1.7722
Epoch 9/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7096 - val_loss: 1.7509
Epoch 10/100
50/50 [==============================] - 5s 98ms/step - loss: 0.7066 - val_loss: 1.7299
Epoch 11/100
50/50 [==============================] - 5s 100ms/step - loss: 0.7052 - val_loss: 1.7089
Epoch 12/100
50/50 [==============================] - 5s 100ms/step - loss: 0.7009 - val_loss: 1.6878
Epoch 13/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6989 - val_loss: 1.6664
Epoch 14/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6955 - val_loss: 1.6446
Epoch 15/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6935 - val_loss: 1.6217
Epoch 16/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6882 - val_loss: 1.5975
Epoch 17/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6834 - val_loss: 1.5713
Epoch 18/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6748 - val_loss: 1.5434
Epoch 19/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6630 - val_loss: 1.5121
Epoch 20/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6312 - val_loss: 1.4789
Epoch 21/100
50/50 [==============================] - 5s 100ms/step - loss: 0.5864 - val_loss: 1.4372
Epoch 22/100

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50/50 [==============================] - 5s 99ms/step - loss: 0.5267 - val_loss: 1.2582
Epoch 23/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4751 - val_loss: 1.1476
Epoch 24/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4337 - val_loss: 0.9588
Epoch 25/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4018 - val_loss: 0.8503
Epoch 26/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3888 - val_loss: 0.8662
Epoch 27/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3802 - val_loss: 0.7693
Epoch 28/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3737 - val_loss: 0.7509
Epoch 29/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3616 - val_loss: 0.7373
Epoch 30/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3519 - val_loss: 0.7930
Epoch 31/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3425 - val_loss: 0.7056
Epoch 32/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3347 - val_loss: 0.7930
Epoch 33/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3265 - val_loss: 0.6861
Epoch 34/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3209 - val_loss: 0.6862
Epoch 35/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3138 - val_loss: 0.6688
Epoch 36/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3073 - val_loss: 0.6792
Epoch 37/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2976 - val_loss: 0.6224
Epoch 38/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3022 - val_loss: 0.6580
Epoch 39/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2965 - val_loss: 0.7281
Epoch 40/100
50/50 [==============================] - 5s 102ms/step - loss: 0.2917 - val_loss: 0.6648
Epoch 41/100
50/50 [==============================] - 5s 102ms/step - loss: 0.2932 - val_loss: 0.6283
Epoch 42/100
50/50 [==============================] - 5s 103ms/step - loss: 0.2885 - val_loss: 0.5764
Epoch 43/100
50/50 [==============================] - 5s 99ms/step - loss: 0.2931 - val_loss: 0.5901
Epoch 44/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2834 - val_loss: 0.5742
Epoch 45/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2826 - val_loss: 0.5791
Epoch 46/100
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50/50 [==============================] - 5s 102ms/step - loss: 0.2880 - val_loss: 0.5701
Epoch 47/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2804 - val_loss: 0.5682
Epoch 48/100
50/50 [==============================] - 5s 103ms/step - loss: 0.2910 - val_loss: 0.6004
Epoch 49/100
50/50 [==============================] - 5s 103ms/step - loss: 0.2796 - val_loss: 0.5898
Epoch 50/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2788 - val_loss: 0.5722
Epoch 51/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2796 - val_loss: 0.5593
Epoch 52/100
50/50 [==============================] - 5s 98ms/step - loss: 0.2789 - val_loss: 0.5723
Epoch 53/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2795 - val_loss: 1.5834
Epoch 54/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2956 - val_loss: 0.5531
Epoch 55/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2756 - val_loss: 0.5641
Epoch 56/100
50/50 [==============================] - 5s 102ms/step - loss: 0.2771 - val_loss: 0.5569
Epoch 57/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2735 - val_loss: 0.5584
Epoch 58/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2749 - val_loss: 0.5534
Epoch 59/100
50/50 [==============================] - 5s 103ms/step - loss: 0.2733 - val_loss: 0.5634
Epoch 60/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3344 - val_loss: 1.1190
Epoch 61/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6571 - val_loss: 1.0886
Epoch 62/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6182 - val_loss: 1.0571
Epoch 63/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4449 - val_loss: 0.8110
Epoch 64/100
50/50 [==============================] - 5s 102ms/step - loss: 0.2963 - val_loss: 0.5886
Epoch 65/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2787 - val_loss: 0.5601
Epoch 66/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2761 - val_loss: 0.5559
Epoch 67/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2735 - val_loss: 0.5556
Epoch 68/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2726 - val_loss: 0.5456
Epoch 69/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2723 - val_loss: 0.5446
Epoch 70/100
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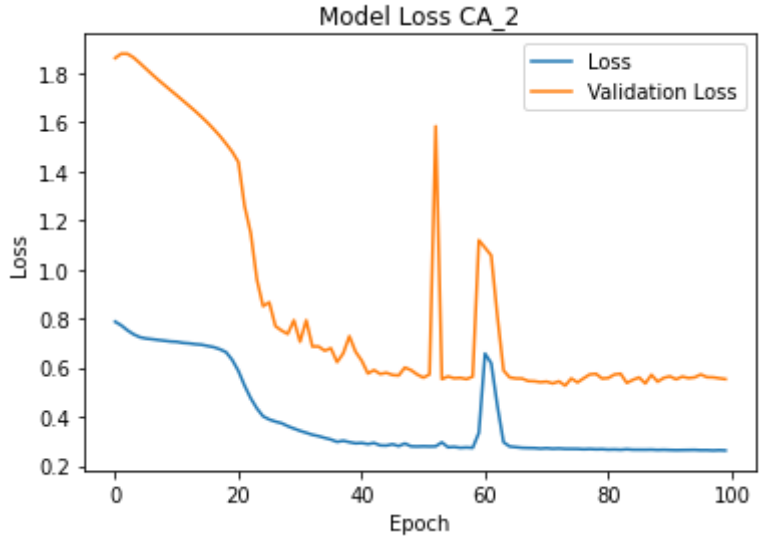
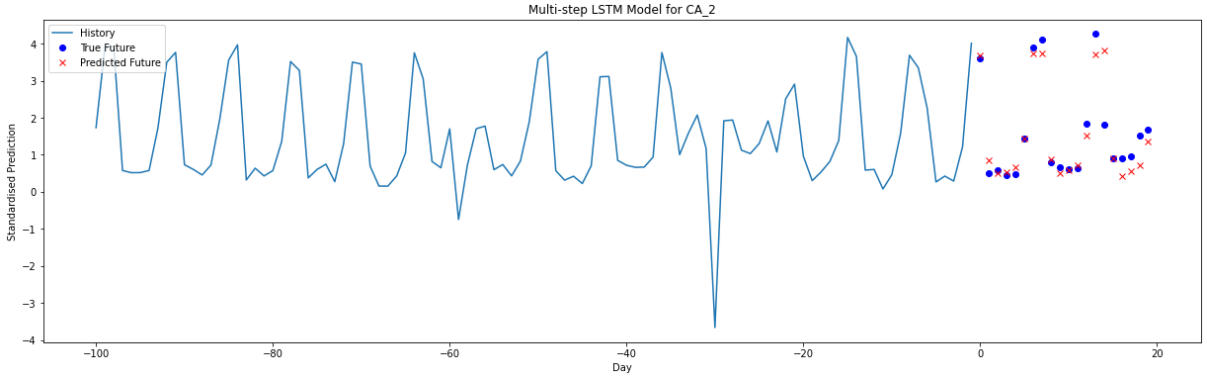
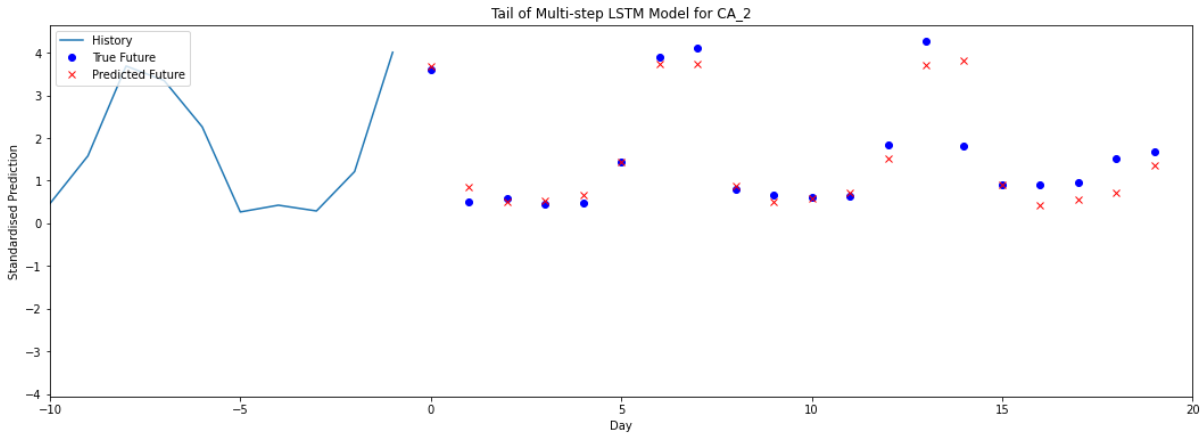
50/50 [==============================] - 5s 102ms/step - loss: 0.2703 - val_loss: 0.5409
Epoch 71/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2718 - val_loss: 0.5431
Epoch 72/100
50/50 [==============================] - 5s 103ms/step - loss: 0.2697 - val_loss: 0.5358
Epoch 73/100
50/50 [==============================] - 5s 103ms/step - loss: 0.2708 - val_loss: 0.5441
Epoch 74/100
50/50 [==============================] - 5s 102ms/step - loss: 0.2692 - val_loss: 0.5268
Epoch 75/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2691 - val_loss: 0.5559
Epoch 76/100
50/50 [==============================] - 5s 99ms/step - loss: 0.2689 - val_loss: 0.5398
Epoch 77/100
50/50 [==============================] - 5s 99ms/step - loss: 0.2675 - val_loss: 0.5566
Epoch 78/100
50/50 [==============================] - 5s 99ms/step - loss: 0.2686 - val_loss: 0.5725
Epoch 79/100
50/50 [==============================] - 5s 99ms/step - loss: 0.2673 - val_loss: 0.5747
Epoch 80/100
50/50 [==============================] - 5s 98ms/step - loss: 0.2678 - val_loss: 0.5556
Epoch 81/100
50/50 [==============================] - 5s 99ms/step - loss: 0.2660 - val_loss: 0.5577
Epoch 82/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2667 - val_loss: 0.5721
Epoch 83/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2655 - val_loss: 0.5752
Epoch 84/100
50/50 [==============================] - 5s 103ms/step - loss: 0.2675 - val_loss: 0.5377
Epoch 85/100
50/50 [==============================] - 6s 119ms/step - loss: 0.2656 - val_loss: 0.5504
Epoch 86/100
50/50 [==============================] - 6s 124ms/step - loss: 0.2655 - val_loss: 0.5600
Epoch 87/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2655 - val_loss: 0.5356
Epoch 88/100
50/50 [==============================] - 5s 99ms/step - loss: 0.2659 - val_loss: 0.5709
Epoch 89/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2645 - val_loss: 0.5428
Epoch 90/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2652 - val_loss: 0.5583
Epoch 91/100
50/50 [==============================] - 5s 103ms/step - loss: 0.2643 - val_loss: 0.5646
Epoch 92/100
50/50 [==============================] - 5s 100ms/step - loss: 0.2637 - val_loss: 0.5526
Epoch 93/100
50/50 [==============================] - 5s 103ms/step - loss: 0.2641 - val_loss: 0.5633
Epoch 94/100
```

50/50 [==============================] - 5s 100ms/step - loss: 0.2644 - val_loss: 0.5575
Epoch 95/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2648 - val_loss: 0.5601
Epoch 96/100
50/50 [==============================] - 5s 99ms/step - loss: 0.2635 - val_loss: 0.5723
Epoch 97/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2637 - val_loss: 0.5612
Epoch 98/100
50/50 [==============================] - 5s 98ms/step - loss: 0.2625 - val_loss: 0.5604
Epoch 99/100
50/50 [==============================] - 5s 99ms/step - loss: 0.2636 - val_loss: 0.5566
Epoch 100/100
50/50 [==============================] - 5s 101ms/step - loss: 0.2625 - val_loss: 0.5532







CA_2 - True Future: [5647. 3240. 3294. 3189. 3211. 3964. 5873. 6037. 3454. 3360. 3314. 3333.
 4276. 6150. 4251. 3537. 3549. 3586. 4026. 4140.]
CA_2 - Model Prediction: [5699.5073 3505.1243 3244.9111 3249.5967 3370.7979 3969.3823
5753.3
 5753.3823 3533.2393 3235.5745 3306.2349 3401.4568 4017.303 5731.5083
 5804.383 3545.407 3176.892 3284.1462 3396.9888 3906.7148]
CA_2 - Model Percentage Error: [0.92982689 8.18284776 1.49025098 1.9001781   4.97657588
0.13578013
  2.03814397 4.69799032 2.29413022 3.70314099 0.23431312 2.053909
  6.04997712 6.80474308 36.5415858   0.23768681 10.48486645 8.41756162
 15.62372654 5.63490716]%
CA_2 - Model Mean Percentage Error: 6.121607096258087%
==========
==========
Model: "sequential_2"
_____
Layer (type) Output Shape Param #
==========
lstm_4 (LSTM) (None, 100, 32) 4352
_____
lstm_5 (LSTM) (None, 16) 3136
_____
dense_2 (Dense) (None, 20) 340
==========
Total params: 7,828
Trainable params: 7,828
Non-trainable params: 0
_____

Training Model for CA_3...

Epoch 1/100
50/50 [==========] - 5s 110ms/step - loss: 0.7350 - val_loss: 0.6586
Epoch 2/100
50/50 [==========] - 5s 98ms/step - loss: 0.7241 - val_loss: 0.6556
Epoch 3/100

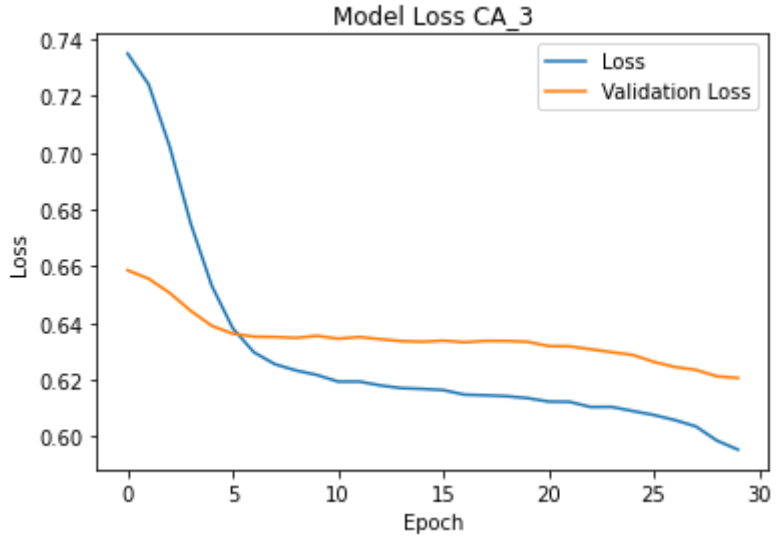
```
50/50 [==============================] - 5s 98ms/step - loss: 0.7022 - val_loss: 0.6506
Epoch 4/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6750 - val_loss: 0.6443
Epoch 5/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6531 - val_loss: 0.6390
Epoch 6/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6381 - val_loss: 0.6363
Epoch 7/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6297 - val_loss: 0.6352
Epoch 8/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6255 - val_loss: 0.6351
Epoch 9/100
50/50 [==============================] - 5s 95ms/step - loss: 0.6233 - val_loss: 0.6348
Epoch 10/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6217 - val_loss: 0.6355
Epoch 11/100
50/50 [==============================] - 5s 96ms/step - loss: 0.6194 - val_loss: 0.6345
Epoch 12/100
50/50 [==============================] - 5s 96ms/step - loss: 0.6194 - val_loss: 0.6351
Epoch 13/100
50/50 [==============================] - 5s 96ms/step - loss: 0.6180 - val_loss: 0.6343
Epoch 14/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6171 - val_loss: 0.6336
Epoch 15/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6168 - val_loss: 0.6334
Epoch 16/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6164 - val_loss: 0.6338
Epoch 17/100
50/50 [==============================] - 5s 96ms/step - loss: 0.6148 - val_loss: 0.6332
Epoch 18/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6145 - val_loss: 0.6337
Epoch 19/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6142 - val_loss: 0.6337
Epoch 20/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6135 - val_loss: 0.6334
Epoch 21/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6123 - val_loss: 0.6319
Epoch 22/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6122 - val_loss: 0.6318
Epoch 23/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6104 - val_loss: 0.6308
Epoch 24/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6104 - val_loss: 0.6298
Epoch 25/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6090 - val_loss: 0.6288
Epoch 26/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6076 - val_loss: 0.6263
Epoch 27/100
```

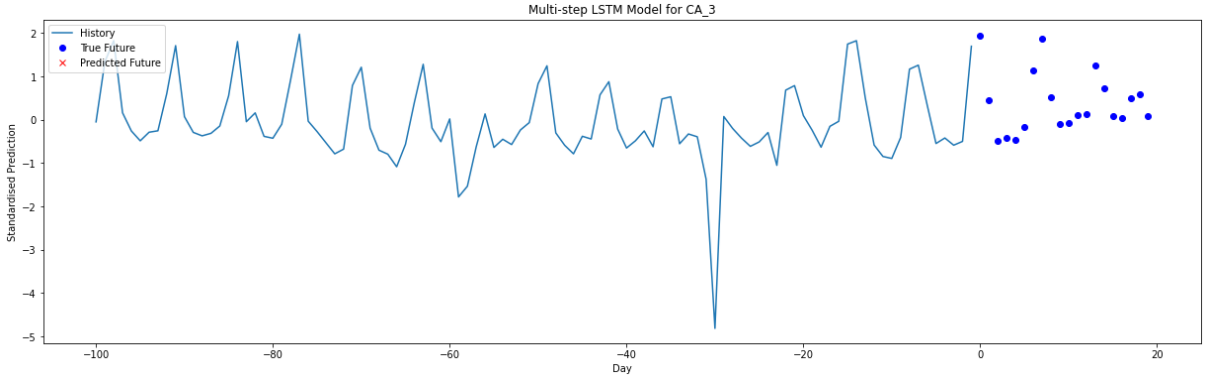
50/50 [==============================] - 5s 97ms/step - loss: 0.6058 - val_loss: 0.6245
Epoch 28/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6036 - val_loss: 0.6235
Epoch 29/100
50/50 [==============================] - 5s 100ms/step - loss: 0.5986 - val_loss: 0.6212
Epoch 30/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5954 - val_loss: 0.6206
Epoch 31/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 32/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 33/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 34/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 35/100
50/50 [==============================] - 5s 102ms/step - loss: nan - val_loss: nan
Epoch 36/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 37/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 38/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 39/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 40/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 41/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 42/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 43/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 44/100
50/50 [==============================] - 5s 96ms/step - loss: nan - val_loss: nan
Epoch 45/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 46/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 47/100
50/50 [==============================] - 5s 96ms/step - loss: nan - val_loss: nan
Epoch 48/100
50/50 [==============================] - 5s 96ms/step - loss: nan - val_loss: nan
Epoch 49/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 50/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 51/100

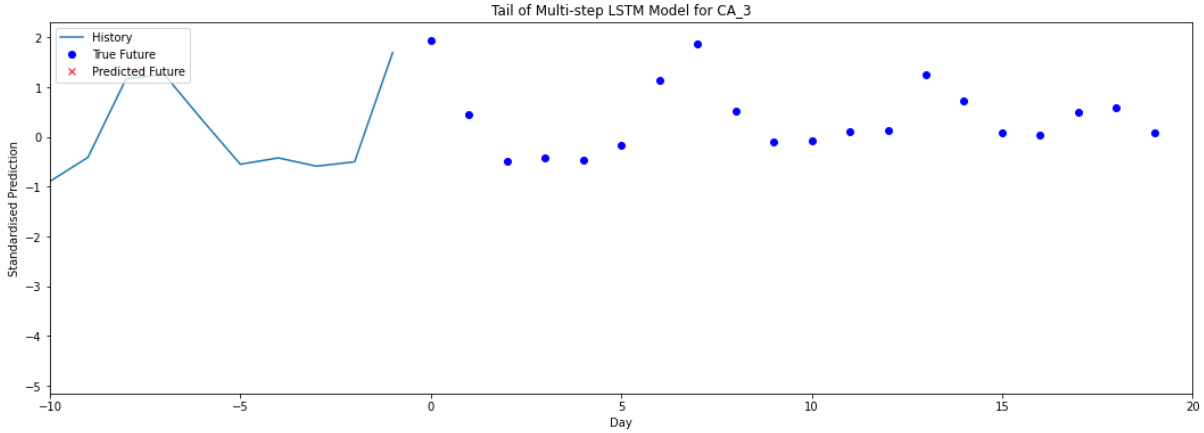
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 52/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 53/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 54/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 55/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 56/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 57/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 58/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 59/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 60/100
50/50 [==============================] - 5s 102ms/step - loss: nan - val_loss: nan
Epoch 61/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 62/100
50/50 [==============================] - 5s 102ms/step - loss: nan - val_loss: nan
Epoch 63/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 64/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 65/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 66/100
50/50 [==============================] - 5s 96ms/step - loss: nan - val_loss: nan
Epoch 67/100
50/50 [==============================] - 5s 96ms/step - loss: nan - val_loss: nan
Epoch 68/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 69/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 70/100
50/50 [==============================] - 5s 103ms/step - loss: nan - val_loss: nan
Epoch 71/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 72/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 73/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 74/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 75/100

50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 76/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 77/100
50/50 [==============================] - 5s 96ms/step - loss: nan - val_loss: nan
Epoch 78/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 79/100
50/50 [==============================] - 5s 96ms/step - loss: nan - val_loss: nan
Epoch 80/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 81/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 82/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 83/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 84/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 85/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 86/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 87/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 88/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 89/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 90/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 91/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 92/100
50/50 [==============================] - 5s 96ms/step - loss: nan - val_loss: nan
Epoch 93/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 94/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 95/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 96/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 97/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 98/100
50/50 [==============================] - 5s 102ms/step - loss: nan - val_loss: nan
Epoch 99/100

50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 100/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan







CA_3 - True Future: [8164. 6371. 5244. 5309. 5261. 5637. 7217. 8094. 6446. 5722. 5740. 5951.
5986. 7347. 6696. 5930. 5882. 6421. 6547. 5928.]
CA_3 - Model Prediction: [nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan
nan nan]
CA_3 - Model Percentage Error: [nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan
nan nan nan

nan nan]%
CA_3 - Model Mean Percentage Error: nan%
==========
==========
Model: "sequential_3"
_____
Layer (type) Output Shape Param #
==========
lstm_6 (LSTM) (None, 100, 32) 4352
_____
lstm_7 (LSTM) (None, 16) 3136
_____
dense_3 (Dense) (None, 20) 340
==========
Total params: 7,828
Trainable params: 7,828
Non-trainable params: 0
_____

Training Model for CA_4...

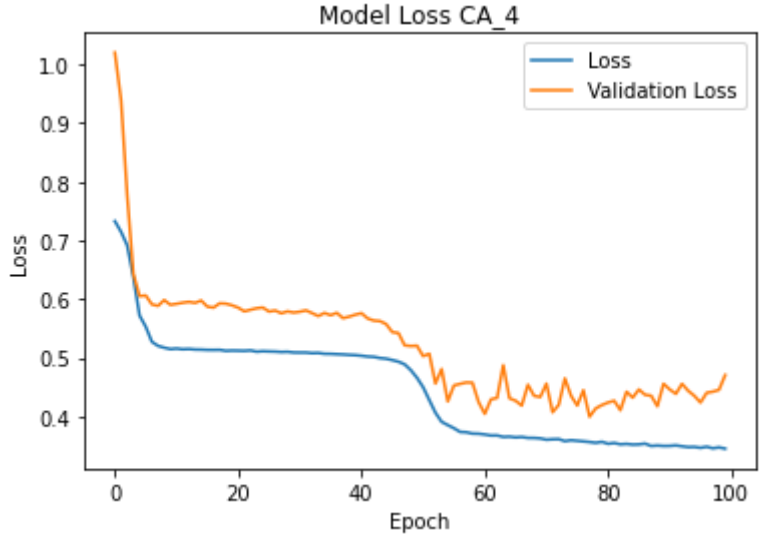
Epoch 1/100
50/50 [==========] - 5s 106ms/step - loss: 0.7330 - val_loss: 1.0202
Epoch 2/100
50/50 [==========] - 5s 96ms/step - loss: 0.7148 - val_loss: 0.9392
Epoch 3/100
50/50 [==========] - 5s 97ms/step - loss: 0.6916 - val_loss: 0.7765
Epoch 4/100
50/50 [==========] - 5s 98ms/step - loss: 0.6376 - val_loss: 0.6430
Epoch 5/100
50/50 [==========] - 7s 143ms/step - loss: 0.5722 - val_loss: 0.6052
Epoch 6/100
50/50 [==========] - 5s 95ms/step - loss: 0.5532 - val_loss: 0.6064
Epoch 7/100
50/50 [==========] - 5s 96ms/step - loss: 0.5274 - val_loss: 0.5912
Epoch 8/100
50/50 [==========] - 5s 98ms/step - loss: 0.5204 - val_loss: 0.5887
Epoch 9/100
50/50 [==========] - 5s 97ms/step - loss: 0.5174 - val_loss: 0.5985
Epoch 10/100
50/50 [==========] - 5s 99ms/step - loss: 0.5150 - val_loss: 0.5905
Epoch 11/100
50/50 [==========] - 5s 97ms/step - loss: 0.5159 - val_loss: 0.5921
Epoch 12/100
50/50 [==========] - 5s 98ms/step - loss: 0.5147 - val_loss: 0.5940
Epoch 13/100
50/50 [==========] - 5s 95ms/step - loss: 0.5152 - val_loss: 0.5954
Epoch 14/100

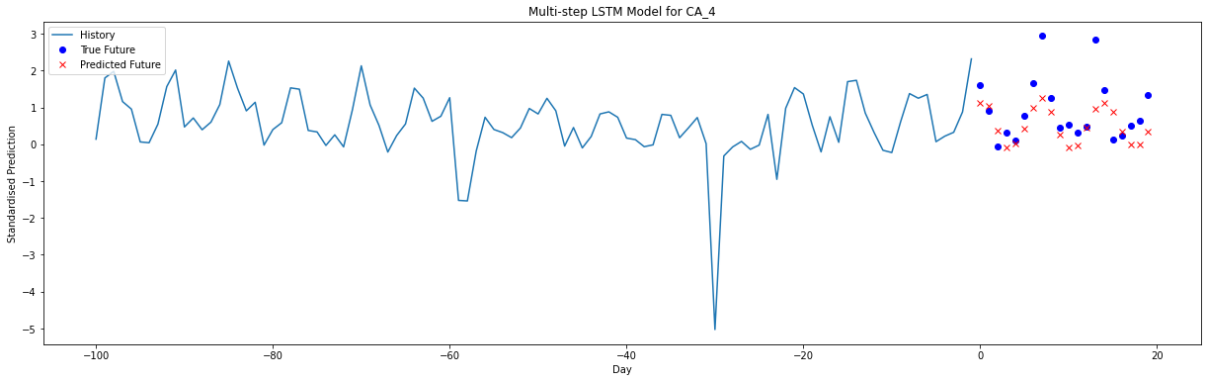
```
50/50 [==============================] - 5s 98ms/step - loss: 0.5143 - val_loss: 0.5938
Epoch 15/100
50/50 [==============================] - 5s 97ms/step - loss: 0.5141 - val_loss: 0.5976
Epoch 16/100
50/50 [==============================] - 5s 99ms/step - loss: 0.5136 - val_loss: 0.5873
Epoch 17/100
50/50 [==============================] - 5s 97ms/step - loss: 0.5135 - val_loss: 0.5857
Epoch 18/100
50/50 [==============================] - 5s 96ms/step - loss: 0.5137 - val_loss: 0.5929
Epoch 19/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5120 - val_loss: 0.5924
Epoch 20/100
50/50 [==============================] - 5s 96ms/step - loss: 0.5125 - val_loss: 0.5896
Epoch 21/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5123 - val_loss: 0.5856
Epoch 22/100
50/50 [==============================] - 5s 97ms/step - loss: 0.5120 - val_loss: 0.5793
Epoch 23/100
50/50 [==============================] - 5s 100ms/step - loss: 0.5127 - val_loss: 0.5820
Epoch 24/100
50/50 [==============================] - 5s 99ms/step - loss: 0.5106 - val_loss: 0.5846
Epoch 25/100
50/50 [==============================] - 5s 96ms/step - loss: 0.5114 - val_loss: 0.5858
Epoch 26/100
50/50 [==============================] - 5s 102ms/step - loss: 0.5110 - val_loss: 0.5789
Epoch 27/100
50/50 [==============================] - 5s 95ms/step - loss: 0.5107 - val_loss: 0.5807
Epoch 28/100
50/50 [==============================] - 5s 99ms/step - loss: 0.5100 - val_loss: 0.5760
Epoch 29/100
50/50 [==============================] - 5s 101ms/step - loss: 0.5104 - val_loss: 0.5793
Epoch 30/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5092 - val_loss: 0.5772
Epoch 31/100
50/50 [==============================] - 5s 97ms/step - loss: 0.5091 - val_loss: 0.5786
Epoch 32/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5091 - val_loss: 0.5809
Epoch 33/100
50/50 [==============================] - 5s 99ms/step - loss: 0.5081 - val_loss: 0.5763
Epoch 34/100
50/50 [==============================] - 5s 96ms/step - loss: 0.5084 - val_loss: 0.5713
Epoch 35/100
50/50 [==============================] - 5s 100ms/step - loss: 0.5070 - val_loss: 0.5765
Epoch 36/100
50/50 [==============================] - 5s 97ms/step - loss: 0.5068 - val_loss: 0.5727
Epoch 37/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5063 - val_loss: 0.5767
Epoch 38/100
```

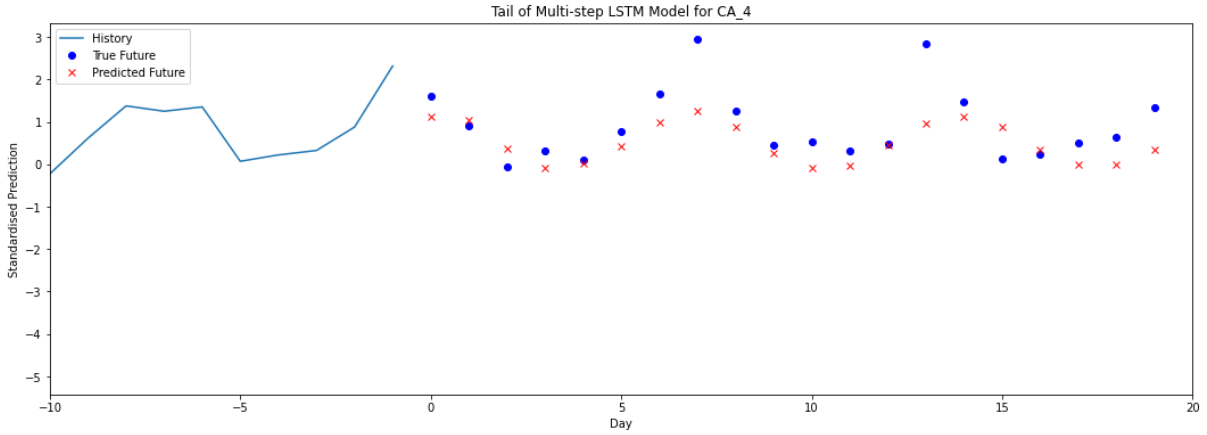
```
50/50 [==============================] - 5s 96ms/step - loss: 0.5058 - val_loss: 0.5677
Epoch 39/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5051 - val_loss: 0.5702
Epoch 40/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5047 - val_loss: 0.5736
Epoch 41/100
50/50 [==============================] - 5s 96ms/step - loss: 0.5037 - val_loss: 0.5762
Epoch 42/100
50/50 [==============================] - 5s 96ms/step - loss: 0.5023 - val_loss: 0.5672
Epoch 43/100
50/50 [==============================] - 5s 100ms/step - loss: 0.5017 - val_loss: 0.5636
Epoch 44/100
50/50 [==============================] - 5s 96ms/step - loss: 0.4997 - val_loss: 0.5627
Epoch 45/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4986 - val_loss: 0.5576
Epoch 46/100
50/50 [==============================] - 5s 97ms/step - loss: 0.4963 - val_loss: 0.5439
Epoch 47/100
50/50 [==============================] - 5s 97ms/step - loss: 0.4935 - val_loss: 0.5423
Epoch 48/100
50/50 [==============================] - 5s 97ms/step - loss: 0.4890 - val_loss: 0.5214
Epoch 49/100
50/50 [==============================] - 5s 97ms/step - loss: 0.4792 - val_loss: 0.5202
Epoch 50/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4662 - val_loss: 0.5208
Epoch 51/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4500 - val_loss: 0.5030
Epoch 52/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4282 - val_loss: 0.5070
Epoch 53/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4066 - val_loss: 0.4563
Epoch 54/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3911 - val_loss: 0.4810
Epoch 55/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3855 - val_loss: 0.4259
Epoch 56/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3802 - val_loss: 0.4530
Epoch 57/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3738 - val_loss: 0.4557
Epoch 58/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3733 - val_loss: 0.4581
Epoch 59/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3710 - val_loss: 0.4577
Epoch 60/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3708 - val_loss: 0.4246
Epoch 61/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3695 - val_loss: 0.4047
Epoch 62/100
```

```
50/50 [==============================] - 5s 99ms/step - loss: 0.3678 - val_loss: 0.4293
Epoch 63/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3679 - val_loss: 0.4318
Epoch 64/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3653 - val_loss: 0.4876
Epoch 65/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3658 - val_loss: 0.4312
Epoch 66/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3646 - val_loss: 0.4270
Epoch 67/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3652 - val_loss: 0.4188
Epoch 68/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3637 - val_loss: 0.4542
Epoch 69/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3636 - val_loss: 0.4354
Epoch 70/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3628 - val_loss: 0.4334
Epoch 71/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3606 - val_loss: 0.4561
Epoch 72/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3613 - val_loss: 0.4075
Epoch 73/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3616 - val_loss: 0.4199
Epoch 74/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3582 - val_loss: 0.4650
Epoch 75/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3597 - val_loss: 0.4353
Epoch 76/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3587 - val_loss: 0.4189
Epoch 77/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3578 - val_loss: 0.4449
Epoch 78/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3567 - val_loss: 0.3997
Epoch 79/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3553 - val_loss: 0.4140
Epoch 80/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3570 - val_loss: 0.4196
Epoch 81/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3537 - val_loss: 0.4239
Epoch 82/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3550 - val_loss: 0.4269
Epoch 83/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3527 - val_loss: 0.4109
Epoch 84/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3534 - val_loss: 0.4423
Epoch 85/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3523 - val_loss: 0.4323
Epoch 86/100
```

50/50 [==============================] - 5s 100ms/step - loss: 0.3526 - val_loss: 0.4462
Epoch 87/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3539 - val_loss: 0.4371
Epoch 88/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3499 - val_loss: 0.4355
Epoch 89/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3507 - val_loss: 0.4176
Epoch 90/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3499 - val_loss: 0.4559
Epoch 91/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3501 - val_loss: 0.4463
Epoch 92/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3509 - val_loss: 0.4388
Epoch 93/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3493 - val_loss: 0.4558
Epoch 94/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3480 - val_loss: 0.4439
Epoch 95/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3483 - val_loss: 0.4354
Epoch 96/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3468 - val_loss: 0.4239
Epoch 97/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3486 - val_loss: 0.4405
Epoch 98/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3460 - val_loss: 0.4424
Epoch 99/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3475 - val_loss: 0.4455
Epoch 100/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3454 - val_loss: 0.4707







CA_4 - True Future: [2787. 2487. 2088. 2239. 2153. 2432. 2806. 3343. 2643. 2299. 2335. 2244.
2316. 3301. 2727. 2166. 2207. 2323. 2383. 2677.]
CA_4 - Model Prediction: [2586.3533 2552.3945 2268.334 2069.4392 2115.1257 2283.9722
2525.374
2635.3662 2485.013 2223.1692 2076.7346 2100.9812 2299.8374 2515.6304
2585.7988 2477.6208 2259.7822 2106.9192 2109.4597 2255.6118]
CA_4 - Model Percentage Error: [7.19938028 2.62945441 8.63668508 7.573059 1.75913923
6.08667072
10.00092575 21.16762755 5.97756567 3.29842586 11.06061588 6.37338676
0.69786691 23.79187001 5.17789409 14.3869275 2.39158254 9.30179985
11.47882011 15.74106028]%
CA_4 - Model Mean Percentage Error: 8.736537873698989%
==========
==========
Model: "sequential_4"

Layer (type)	Output Shape	Param #
lstm_8 (LSTM)	(None, 100, 32)	4352
lstm_9 (LSTM)	(None, 16)	3136
dense_4 (Dense)	(None, 20)	340

Total params: 7,828
Trainable params: 7,828

Non-trainable params: 0
_____

Training Model for TX_1...

Epoch 1/100
50/50 [==============================] - 5s 105ms/step - loss: 0.7571 - val_loss: 0.7683
Epoch 2/100
50/50 [==============================] - 5s 95ms/step - loss: 0.7558 - val_loss: 0.7733
Epoch 3/100
50/50 [==============================] - 5s 96ms/step - loss: 0.7538 - val_loss: 0.7773
Epoch 4/100
50/50 [==============================] - 5s 96ms/step - loss: 0.7519 - val_loss: 0.7801
Epoch 5/100
50/50 [==============================] - 5s 96ms/step - loss: 0.7511 - val_loss: 0.7820
Epoch 6/100
50/50 [==============================] - 5s 100ms/step - loss: 0.7494 - val_loss: 0.7831
Epoch 7/100
50/50 [==============================] - 5s 100ms/step - loss: 0.7464 - val_loss: 0.7832
Epoch 8/100
50/50 [==============================] - 5s 95ms/step - loss: 0.7428 - val_loss: 0.7816
Epoch 9/100
50/50 [==============================] - 5s 96ms/step - loss: 0.7360 - val_loss: 0.7760
Epoch 10/100
50/50 [==============================] - 5s 96ms/step - loss: 0.7284 - val_loss: 0.7682
Epoch 11/100
50/50 [==============================] - 5s 98ms/step - loss: 0.7221 - val_loss: 0.7605
Epoch 12/100
50/50 [==============================] - 5s 98ms/step - loss: 0.7151 - val_loss: 0.7504
Epoch 13/100
50/50 [==============================] - 5s 96ms/step - loss: 0.7108 - val_loss: 0.7408
Epoch 14/100
50/50 [==============================] - 5s 100ms/step - loss: 0.7074 - val_loss: 0.7327
Epoch 15/100
50/50 [==============================] - 5s 98ms/step - loss: 0.7056 - val_loss: 0.7266
Epoch 16/100
50/50 [==============================] - 5s 98ms/step - loss: 0.7046 - val_loss: 0.7230
Epoch 17/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7028 - val_loss: 0.7192
Epoch 18/100
50/50 [==============================] - 5s 101ms/step - loss: 0.7029 - val_loss: 0.7175
Epoch 19/100
50/50 [==============================] - 5s 97ms/step - loss: 0.7026 - val_loss: 0.7159
Epoch 20/100
50/50 [==============================] - 5s 94ms/step - loss: 0.7021 - val_loss: 0.7148
Epoch 21/100
50/50 [==============================] - 5s 98ms/step - loss: 0.7009 - val_loss: 0.7130
Epoch 22/100

50/50 [==============================] - 5s 99ms/step - loss: 0.7019 - val_loss: 0.7121
Epoch 23/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7004 - val_loss: 0.7113
Epoch 24/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7007 - val_loss: 0.7103
Epoch 25/100
50/50 [==============================] - 5s 102ms/step - loss: 0.7003 - val_loss: 0.7095
Epoch 26/100
50/50 [==============================] - 7s 142ms/step - loss: 0.6993 - val_loss: 0.7083
Epoch 27/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6996 - val_loss: 0.7075
Epoch 28/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6984 - val_loss: 0.7083
Epoch 29/100
50/50 [==============================] - 5s 104ms/step - loss: 0.6989 - val_loss: 0.7081
Epoch 30/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6984 - val_loss: 0.7051
Epoch 31/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6974 - val_loss: 0.7056
Epoch 32/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6980 - val_loss: 0.7032
Epoch 33/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6970 - val_loss: 0.7036
Epoch 34/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6968 - val_loss: 0.7026
Epoch 35/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6960 - val_loss: 0.7032
Epoch 36/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6965 - val_loss: 0.6997
Epoch 37/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6956 - val_loss: 0.7016
Epoch 38/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6955 - val_loss: 0.6999
Epoch 39/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6944 - val_loss: 0.6983
Epoch 40/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6944 - val_loss: 0.6997
Epoch 41/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6937 - val_loss: 0.6991
Epoch 42/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6944 - val_loss: 0.6956
Epoch 43/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6920 - val_loss: 0.6945
Epoch 44/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6934 - val_loss: 0.6970
Epoch 45/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6916 - val_loss: 0.6940
Epoch 46/100

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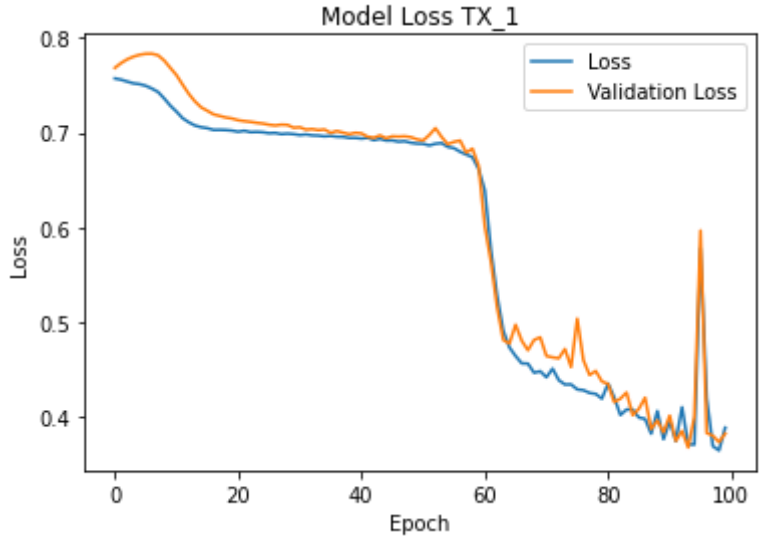
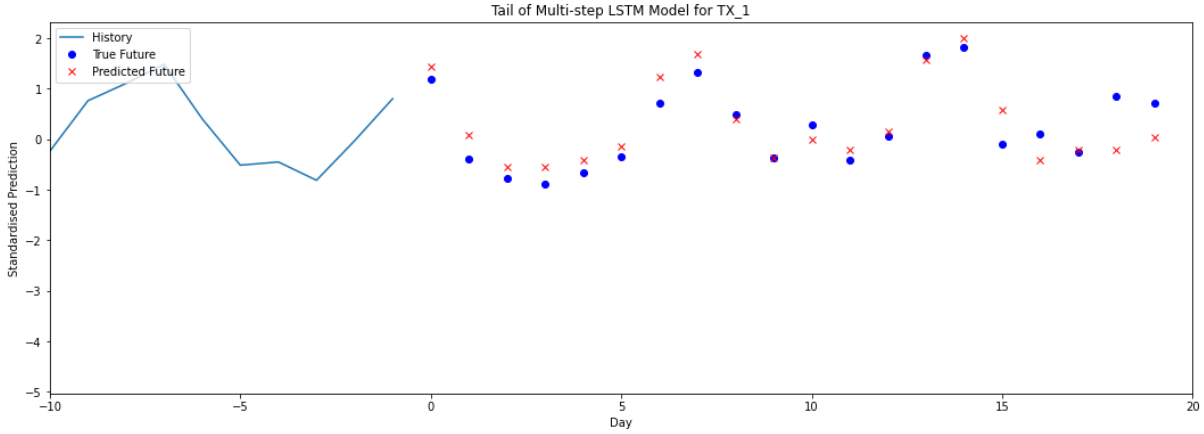
50/50 [==============================] - 5s 101ms/step - loss: 0.6917 - val_loss: 0.6961
Epoch 47/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6904 - val_loss: 0.6957
Epoch 48/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6909 - val_loss: 0.6960
Epoch 49/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6892 - val_loss: 0.6952
Epoch 50/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6883 - val_loss: 0.6929
Epoch 51/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6882 - val_loss: 0.6916
Epoch 52/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6864 - val_loss: 0.6974
Epoch 53/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6882 - val_loss: 0.7047
Epoch 54/100
50/50 [==============================] - 5s 109ms/step - loss: 0.6889 - val_loss: 0.6953
Epoch 55/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6849 - val_loss: 0.6877
Epoch 56/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6835 - val_loss: 0.6901
Epoch 57/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6797 - val_loss: 0.6916
Epoch 58/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6768 - val_loss: 0.6788
Epoch 59/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6740 - val_loss: 0.6830
Epoch 60/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6615 - val_loss: 0.6650
Epoch 61/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6391 - val_loss: 0.6015
Epoch 62/100
50/50 [==============================] - 5s 100ms/step - loss: 0.5762 - val_loss: 0.5637
Epoch 63/100
50/50 [==============================] - 5s 102ms/step - loss: 0.5280 - val_loss: 0.5157
Epoch 64/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4911 - val_loss: 0.4812
Epoch 65/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4733 - val_loss: 0.4774
Epoch 66/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4643 - val_loss: 0.4972
Epoch 67/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4565 - val_loss: 0.4804
Epoch 68/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4563 - val_loss: 0.4704
Epoch 69/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4467 - val_loss: 0.4812
Epoch 70/100
```

```
50/50 [==============================] - 5s 100ms/step - loss: 0.4482 - val_loss: 0.4840
Epoch 71/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4419 - val_loss: 0.4643
Epoch 72/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4509 - val_loss: 0.4629
Epoch 73/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4389 - val_loss: 0.4619
Epoch 74/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4342 - val_loss: 0.4717
Epoch 75/100
50/50 [==============================] - 5s 108ms/step - loss: 0.4343 - val_loss: 0.4527
Epoch 76/100
50/50 [==============================] - 5s 103ms/step - loss: 0.4291 - val_loss: 0.5037
Epoch 77/100
50/50 [==============================] - 5s 103ms/step - loss: 0.4282 - val_loss: 0.4599
Epoch 78/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4254 - val_loss: 0.4443
Epoch 79/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4243 - val_loss: 0.4485
Epoch 80/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4192 - val_loss: 0.4375
Epoch 81/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4353 - val_loss: 0.4347
Epoch 82/100
50/50 [==============================] - 5s 97ms/step - loss: 0.4206 - val_loss: 0.4156
Epoch 83/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4020 - val_loss: 0.4193
Epoch 84/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4078 - val_loss: 0.4258
Epoch 85/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4079 - val_loss: 0.4018
Epoch 86/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3994 - val_loss: 0.4085
Epoch 87/100
50/50 [==============================] - 5s 103ms/step - loss: 0.3980 - val_loss: 0.4203
Epoch 88/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3823 - val_loss: 0.3872
Epoch 89/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4063 - val_loss: 0.3963
Epoch 90/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3766 - val_loss: 0.3837
Epoch 91/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3953 - val_loss: 0.4014
Epoch 92/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3747 - val_loss: 0.3746
Epoch 93/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4103 - val_loss: 0.3852
Epoch 94/100
```

50/50 [==============================] - 5s 100ms/step - loss: 0.3711 - val_loss: 0.3678
Epoch 95/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3709 - val_loss: 0.4001
Epoch 96/100
50/50 [==============================] - 5s 100ms/step - loss: 0.5778 - val_loss: 0.5966
Epoch 97/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4199 - val_loss: 0.3831
Epoch 98/100
50/50 [==============================] - 5s 103ms/step - loss: 0.3692 - val_loss: 0.3802
Epoch 99/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3646 - val_loss: 0.3734
Epoch 100/100
50/50 [==============================] - 5s 103ms/step - loss: 0.3886 - val_loss: 0.3825





TX_1 - True Future: [3639. 2666. 2426. 2357. 2497. 2693. 3347. 3727. 3213. 2681. 3081. 2645.
 2949. 3939. 4034. 2845. 2978. 2745. 3431. 3343.]
TX_1 - Model Prediction: [3791.6372 2963.8184 2568.6348 2565.0347 2649.8923 2818.942
3674.6724
 3952.4248 3157.2505 2677.0845 2897.9067 2776.2488 3004.5947 3883.8943
 4137.339 3268.0076 2655.1804 2780.2554 2776.5735 2934.469]
TX_1 - Model Percentage Error: [4.19448219 11.17098122 5.8794215   8.82624811
6.12304101 4.67663923
  9.79003177 6.04842513 1.7351233   0.14604727 5.94265699 4.96214667
  1.88520606 1.39897722 2.56169725 14.86845583 10.84014708 1.28434867
 19.07392928 12.22049075]%
TX_1 - Model Mean Percentage Error: 6.681424827341222%
==================================
==================================
Model: "sequential_5"
____
Layer (type)   Output Shape   Param #
===
lstm_10 (LSTM)   (None, 100, 32)   4352
____
lstm_11 (LSTM)   (None, 16)   3136
____
dense_5 (Dense)   (None, 20)   340
===
Total params: 7,828
Trainable params: 7,828
Non-trainable params: 0
____

Training Model for TX_2...

Epoch 1/100
50/50 [==============================] - 5s 104ms/step - loss: 0.7680 - val_loss: 0.6775
Epoch 2/100
50/50 [==============================] - 5s 100ms/step - loss: 0.7625 - val_loss: 0.6820
Epoch 3/100

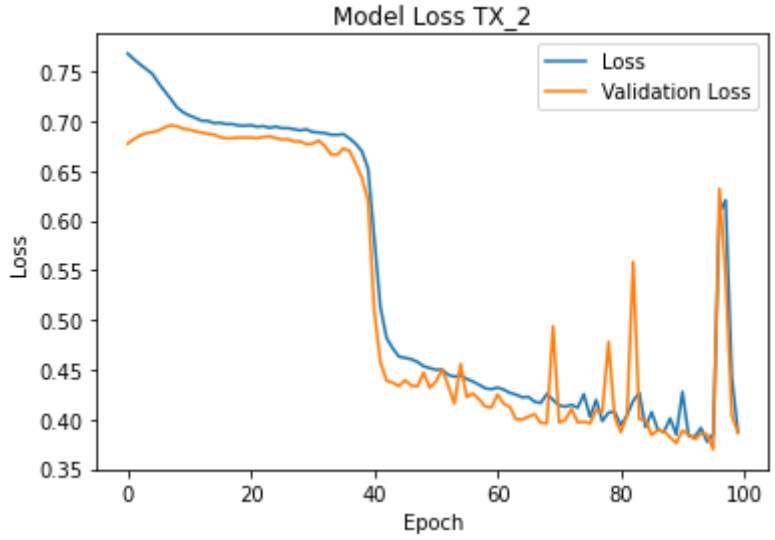
50/50 [==============================] - 5s 102ms/step - loss: 0.7573 - val_loss: 0.6857
Epoch 4/100
50/50 [==============================] - 5s 97ms/step - loss: 0.7526 - val_loss: 0.6880
Epoch 5/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7477 - val_loss: 0.6890
Epoch 6/100
50/50 [==============================] - 5s 100ms/step - loss: 0.7386 - val_loss: 0.6906
Epoch 7/100
50/50 [==============================] - 5s 98ms/step - loss: 0.7303 - val_loss: 0.6937
Epoch 8/100
50/50 [==============================] - 5s 103ms/step - loss: 0.7224 - val_loss: 0.6960
Epoch 9/100
50/50 [==============================] - 5s 102ms/step - loss: 0.7140 - val_loss: 0.6950
Epoch 10/100
50/50 [==============================] - 5s 96ms/step - loss: 0.7090 - val_loss: 0.6925
Epoch 11/100
50/50 [==============================] - 5s 96ms/step - loss: 0.7058 - val_loss: 0.6916
Epoch 12/100
50/50 [==============================] - 5s 97ms/step - loss: 0.7033 - val_loss: 0.6898
Epoch 13/100
50/50 [==============================] - 5s 97ms/step - loss: 0.7005 - val_loss: 0.6885
Epoch 14/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7003 - val_loss: 0.6875
Epoch 15/100
50/50 [==============================] - 5s 97ms/step - loss: 0.6982 - val_loss: 0.6865
Epoch 16/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6983 - val_loss: 0.6840
Epoch 17/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6971 - val_loss: 0.6828
Epoch 18/100
50/50 [==============================] - 5s 94ms/step - loss: 0.6971 - val_loss: 0.6830
Epoch 19/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6956 - val_loss: 0.6836
Epoch 20/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6955 - val_loss: 0.6835
Epoch 21/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6960 - val_loss: 0.6836
Epoch 22/100
50/50 [==============================] - 5s 105ms/step - loss: 0.6945 - val_loss: 0.6831
Epoch 23/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6951 - val_loss: 0.6842
Epoch 24/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6934 - val_loss: 0.6848
Epoch 25/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6946 - val_loss: 0.6831
Epoch 26/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6930 - val_loss: 0.6816
Epoch 27/100

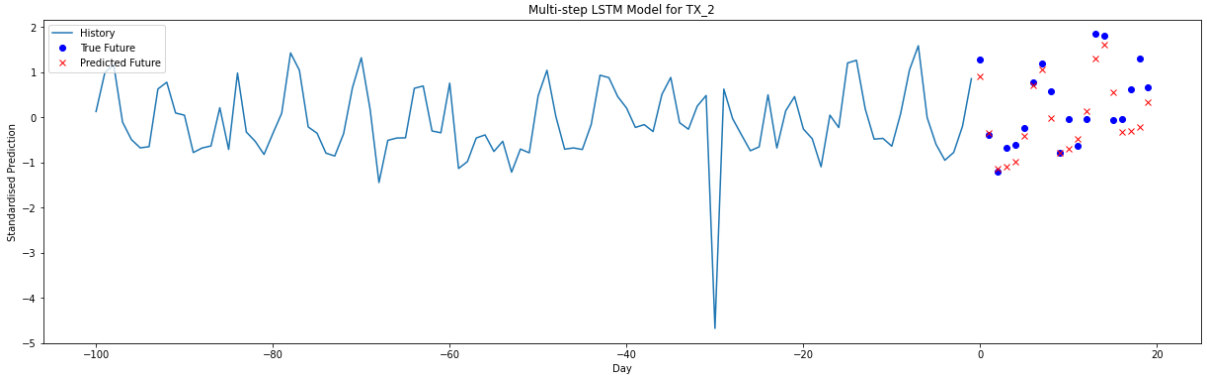
```
50/50 [==============================] - 5s 99ms/step - loss: 0.6931 - val_loss: 0.6819
Epoch 28/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6919 - val_loss: 0.6796
Epoch 29/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6908 - val_loss: 0.6799
Epoch 30/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6918 - val_loss: 0.6768
Epoch 31/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6892 - val_loss: 0.6775
Epoch 32/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6886 - val_loss: 0.6805
Epoch 33/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6880 - val_loss: 0.6749
Epoch 34/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6864 - val_loss: 0.6665
Epoch 35/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6863 - val_loss: 0.6664
Epoch 36/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6871 - val_loss: 0.6726
Epoch 37/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6827 - val_loss: 0.6701
Epoch 38/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6773 - val_loss: 0.6571
Epoch 39/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6699 - val_loss: 0.6430
Epoch 40/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6523 - val_loss: 0.6204
Epoch 41/100
50/50 [==============================] - 5s 99ms/step - loss: 0.5824 - val_loss: 0.5096
Epoch 42/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5129 - val_loss: 0.4576
Epoch 43/100
50/50 [==============================] - 5s 109ms/step - loss: 0.4819 - val_loss: 0.4389
Epoch 44/100
50/50 [==============================] - 7s 142ms/step - loss: 0.4715 - val_loss: 0.4370
Epoch 45/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4632 - val_loss: 0.4336
Epoch 46/100
50/50 [==============================] - 5s 103ms/step - loss: 0.4619 - val_loss: 0.4396
Epoch 47/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4606 - val_loss: 0.4339
Epoch 48/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4579 - val_loss: 0.4333
Epoch 49/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4535 - val_loss: 0.4470
Epoch 50/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4516 - val_loss: 0.4319
Epoch 51/100
```

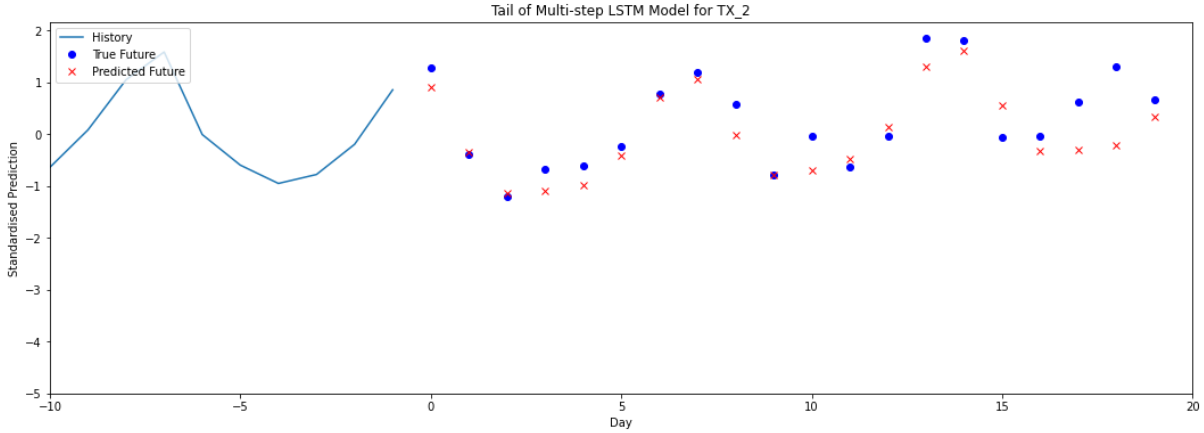
50/50 [==============================] - 5s 98ms/step - loss: 0.4499 - val_loss: 0.4380
Epoch 52/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4502 - val_loss: 0.4503
Epoch 53/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4448 - val_loss: 0.4338
Epoch 54/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4430 - val_loss: 0.4159
Epoch 55/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4442 - val_loss: 0.4558
Epoch 56/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4407 - val_loss: 0.4224
Epoch 57/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4382 - val_loss: 0.4261
Epoch 58/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4349 - val_loss: 0.4204
Epoch 59/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4313 - val_loss: 0.4129
Epoch 60/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4304 - val_loss: 0.4120
Epoch 61/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4320 - val_loss: 0.4251
Epoch 62/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4299 - val_loss: 0.4158
Epoch 63/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4268 - val_loss: 0.4125
Epoch 64/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4249 - val_loss: 0.4001
Epoch 65/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4223 - val_loss: 0.4000
Epoch 66/100
50/50 [==============================] - 5s 103ms/step - loss: 0.4227 - val_loss: 0.4028
Epoch 67/100
50/50 [==============================] - 6s 111ms/step - loss: 0.4178 - val_loss: 0.4052
Epoch 68/100
50/50 [==============================] - 5s 109ms/step - loss: 0.4165 - val_loss: 0.3966
Epoch 69/100
50/50 [==============================] - 5s 105ms/step - loss: 0.4257 - val_loss: 0.3960
Epoch 70/100
50/50 [==============================] - 5s 103ms/step - loss: 0.4196 - val_loss: 0.4936
Epoch 71/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4141 - val_loss: 0.3969
Epoch 72/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4129 - val_loss: 0.3995
Epoch 73/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4147 - val_loss: 0.4105
Epoch 74/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4117 - val_loss: 0.3971
Epoch 75/100

50/50 [==============================] - 5s 98ms/step - loss: 0.4254 - val_loss: 0.3977
Epoch 76/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4027 - val_loss: 0.3958
Epoch 77/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4196 - val_loss: 0.4096
Epoch 78/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3983 - val_loss: 0.4075
Epoch 79/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4069 - val_loss: 0.4782
Epoch 80/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4076 - val_loss: 0.4026
Epoch 81/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3943 - val_loss: 0.3872
Epoch 82/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4043 - val_loss: 0.4037
Epoch 83/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4186 - val_loss: 0.5586
Epoch 84/100
50/50 [==============================] - 5s 103ms/step - loss: 0.4268 - val_loss: 0.4003
Epoch 85/100
50/50 [==============================] - 5s 104ms/step - loss: 0.3922 - val_loss: 0.3994
Epoch 86/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4074 - val_loss: 0.3843
Epoch 87/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3896 - val_loss: 0.3892
Epoch 88/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3874 - val_loss: 0.3881
Epoch 89/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4011 - val_loss: 0.3819
Epoch 90/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3848 - val_loss: 0.3763
Epoch 91/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4278 - val_loss: 0.3887
Epoch 92/100
50/50 [==============================] - 5s 105ms/step - loss: 0.3834 - val_loss: 0.3850
Epoch 93/100
50/50 [==============================] - 5s 104ms/step - loss: 0.3824 - val_loss: 0.3801
Epoch 94/100
50/50 [==============================] - 5s 103ms/step - loss: 0.3915 - val_loss: 0.3858
Epoch 95/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3774 - val_loss: 0.3847
Epoch 96/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3857 - val_loss: 0.3696
Epoch 97/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6078 - val_loss: 0.6320
Epoch 98/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6207 - val_loss: 0.5440
Epoch 99/100

50/50 [==============================] - 5s 100ms/step - loss: 0.4428 - val_loss: 0.4045
Epoch 100/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3873 - val_loss: 0.3865







TX_2 - True Future: [4794. 3441. 2798. 3216. 3264. 3562. 4384. 4712. 4225. 3121. 3722. 3245.
3737. 5240. 5210. 3714. 3737. 4259. 4799. 4295.]
TX_2 - Model Prediction: [4493.698 3487.2004 2843.6213 2882.6768 2971.0254 3425.667
4335.447
4613.0767 3748.2979 3119.6987 3204.0527 3381.6516 3878.152 4801.1465
5049.0522 4210.317 3498.9414 3524.2556 3578.657 4024.319]

TX_2 - Model Percentage Error: [6.26411677 1.34264573 1.63049814 10.36452867
8.97593779 3.82742863
  1.10750964 2.09939176 11.28289109 0.04169399 13.91583196 4.21114365
  3.77715011 8.37506709 3.08920833 13.36340588 6.37031292 17.25157043
 25.4291106   6.30223302]%
TX_2 - Model Mean Percentage Error: 7.4510838099827765%
==================================
==================================
Model: "sequential_6"
____
Layer (type)   Output Shape   Param #
===
lstm_12 (LSTM)   (None, 100, 32)   4352
____
lstm_13 (LSTM)   (None, 16)   3136
____
dense_6 (Dense)   (None, 20)   340
===
Total params: 7,828
Trainable params: 7,828
Non-trainable params: 0
____

Training Model for TX_3...

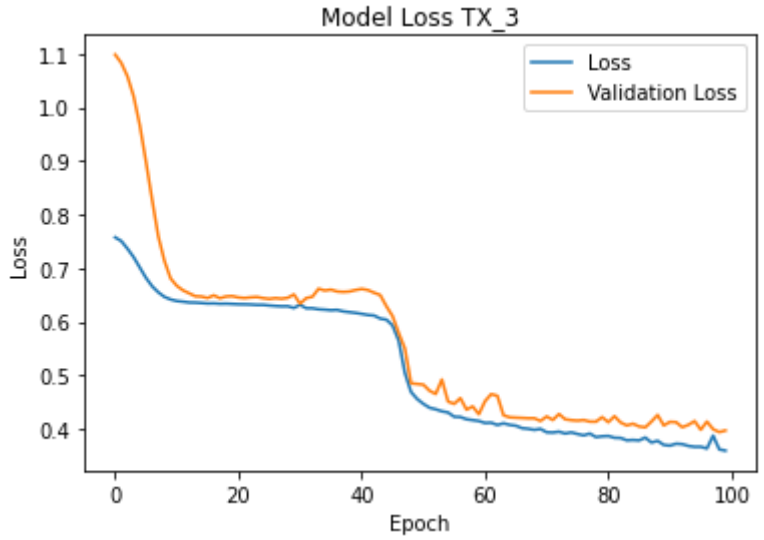
Epoch 1/100
50/50 [==============================] - 6s 113ms/step - loss: 0.7575 - val_loss: 1.0982
Epoch 2/100
50/50 [==============================] - 5s 103ms/step - loss: 0.7506 - val_loss: 1.0826
Epoch 3/100
50/50 [==============================] - 5s 103ms/step - loss: 0.7364 - val_loss: 1.0576
Epoch 4/100
50/50 [==============================] - 6s 110ms/step - loss: 0.7206 - val_loss: 1.0205
Epoch 5/100
50/50 [==============================] - 5s 105ms/step - loss: 0.7012 - val_loss: 0.9666
Epoch 6/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6820 - val_loss: 0.8988
Epoch 7/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6663 - val_loss: 0.8276
Epoch 8/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6550 - val_loss: 0.7595
Epoch 9/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6465 - val_loss: 0.7135
Epoch 10/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6417 - val_loss: 0.6809
Epoch 11/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6388 - val_loss: 0.6672
Epoch 12/100

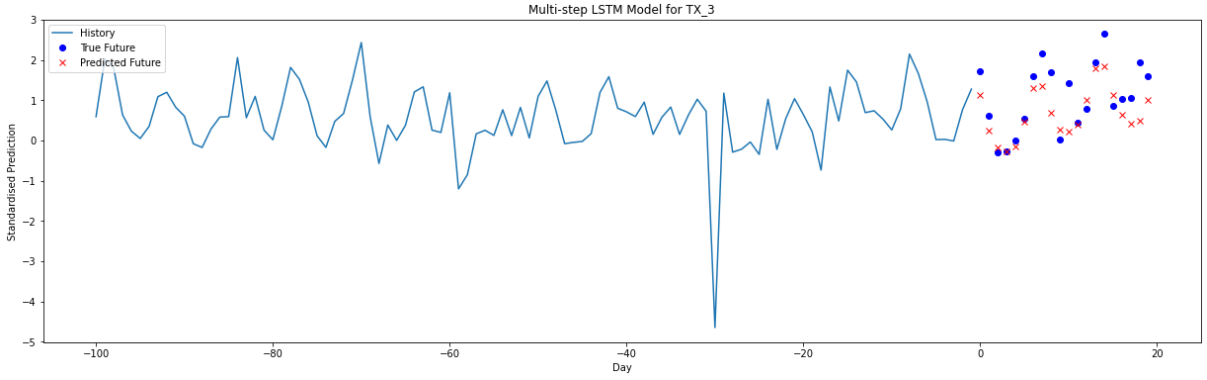
```
50/50 [==============================] - 5s 98ms/step - loss: 0.6376 - val_loss: 0.6587
Epoch 13/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6361 - val_loss: 0.6533
Epoch 14/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6358 - val_loss: 0.6477
Epoch 15/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6351 - val_loss: 0.6471
Epoch 16/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6342 - val_loss: 0.6445
Epoch 17/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6344 - val_loss: 0.6494
Epoch 18/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6336 - val_loss: 0.6440
Epoch 19/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6339 - val_loss: 0.6473
Epoch 20/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6334 - val_loss: 0.6479
Epoch 21/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6328 - val_loss: 0.6454
Epoch 22/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6327 - val_loss: 0.6445
Epoch 23/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6323 - val_loss: 0.6456
Epoch 24/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6316 - val_loss: 0.6463
Epoch 25/100
50/50 [==============================] - 5s 109ms/step - loss: 0.6317 - val_loss: 0.6442
Epoch 26/100
50/50 [==============================] - 6s 115ms/step - loss: 0.6305 - val_loss: 0.6428
Epoch 27/100
50/50 [==============================] - 6s 117ms/step - loss: 0.6296 - val_loss: 0.6441
Epoch 28/100
50/50 [==============================] - 5s 106ms/step - loss: 0.6290 - val_loss: 0.6431
Epoch 29/100
50/50 [==============================] - 5s 105ms/step - loss: 0.6291 - val_loss: 0.6448
Epoch 30/100
50/50 [==============================] - 6s 114ms/step - loss: 0.6259 - val_loss: 0.6511
Epoch 31/100
50/50 [==============================] - 6s 112ms/step - loss: 0.6318 - val_loss: 0.6338
Epoch 32/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6254 - val_loss: 0.6443
Epoch 33/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6253 - val_loss: 0.6467
Epoch 34/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6234 - val_loss: 0.6617
Epoch 35/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6227 - val_loss: 0.6584
Epoch 36/100
```

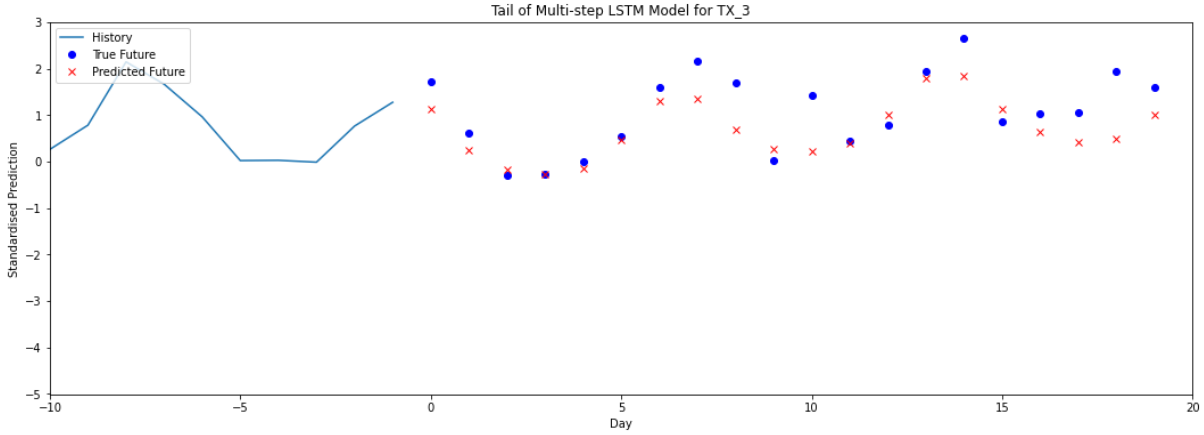
```
50/50 [==============================] - 5s 104ms/step - loss: 0.6217 - val_loss: 0.6601
Epoch 37/100
50/50 [==============================] - 5s 104ms/step - loss: 0.6223 - val_loss: 0.6566
Epoch 38/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6194 - val_loss: 0.6558
Epoch 39/100
50/50 [==============================] - 5s 104ms/step - loss: 0.6181 - val_loss: 0.6565
Epoch 40/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6167 - val_loss: 0.6593
Epoch 41/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6149 - val_loss: 0.6613
Epoch 42/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6128 - val_loss: 0.6593
Epoch 43/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6118 - val_loss: 0.6543
Epoch 44/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6061 - val_loss: 0.6499
Epoch 45/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6041 - val_loss: 0.6291
Epoch 46/100
50/50 [==============================] - 5s 101ms/step - loss: 0.5933 - val_loss: 0.6107
Epoch 47/100
50/50 [==============================] - 5s 106ms/step - loss: 0.5649 - val_loss: 0.5792
Epoch 48/100
50/50 [==============================] - 5s 105ms/step - loss: 0.5050 - val_loss: 0.5502
Epoch 49/100
50/50 [==============================] - 5s 104ms/step - loss: 0.4692 - val_loss: 0.4854
Epoch 50/100
50/50 [==============================] - 5s 109ms/step - loss: 0.4561 - val_loss: 0.4842
Epoch 51/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4471 - val_loss: 0.4829
Epoch 52/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4399 - val_loss: 0.4715
Epoch 53/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4370 - val_loss: 0.4655
Epoch 54/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4333 - val_loss: 0.4924
Epoch 55/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4310 - val_loss: 0.4514
Epoch 56/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4230 - val_loss: 0.4471
Epoch 57/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4226 - val_loss: 0.4577
Epoch 58/100
50/50 [==============================] - 5s 105ms/step - loss: 0.4184 - val_loss: 0.4364
Epoch 59/100
50/50 [==============================] - 6s 124ms/step - loss: 0.4168 - val_loss: 0.4423
Epoch 60/100
```

```
50/50 [==============================] - 7s 150ms/step - loss: 0.4152 - val_loss: 0.4277
Epoch 61/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4114 - val_loss: 0.4521
Epoch 62/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4120 - val_loss: 0.4652
Epoch 63/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4077 - val_loss: 0.4622
Epoch 64/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4108 - val_loss: 0.4258
Epoch 65/100
50/50 [==============================] - 5s 105ms/step - loss: 0.4079 - val_loss: 0.4220
Epoch 66/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4064 - val_loss: 0.4214
Epoch 67/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4018 - val_loss: 0.4208
Epoch 68/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4006 - val_loss: 0.4202
Epoch 69/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3987 - val_loss: 0.4203
Epoch 70/100
50/50 [==============================] - 5s 103ms/step - loss: 0.4004 - val_loss: 0.4152
Epoch 71/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3941 - val_loss: 0.4235
Epoch 72/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3936 - val_loss: 0.4171
Epoch 73/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3952 - val_loss: 0.4281
Epoch 74/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3918 - val_loss: 0.4184
Epoch 75/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3939 - val_loss: 0.4167
Epoch 76/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3909 - val_loss: 0.4158
Epoch 77/100
50/50 [==============================] - 5s 104ms/step - loss: 0.3884 - val_loss: 0.4169
Epoch 78/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3917 - val_loss: 0.4140
Epoch 79/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3851 - val_loss: 0.4139
Epoch 80/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3866 - val_loss: 0.4223
Epoch 81/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3872 - val_loss: 0.4129
Epoch 82/100
50/50 [==============================] - 5s 104ms/step - loss: 0.3838 - val_loss: 0.4241
Epoch 83/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3835 - val_loss: 0.4124
Epoch 84/100
```

```
50/50 [==============================] - 5s 101ms/step - loss: 0.3791 - val_loss: 0.4069
Epoch 85/100
50/50 [==============================] - 5s 109ms/step - loss: 0.3797 - val_loss: 0.4100
Epoch 86/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3789 - val_loss: 0.4049
Epoch 87/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3842 - val_loss: 0.4033
Epoch 88/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3750 - val_loss: 0.4142
Epoch 89/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3781 - val_loss: 0.4264
Epoch 90/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3706 - val_loss: 0.4069
Epoch 91/100
50/50 [==============================] - 5s 103ms/step - loss: 0.3693 - val_loss: 0.4135
Epoch 92/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3728 - val_loss: 0.4129
Epoch 93/100
50/50 [==============================] - 5s 104ms/step - loss: 0.3720 - val_loss: 0.4035
Epoch 94/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3686 - val_loss: 0.4080
Epoch 95/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3670 - val_loss: 0.4150
Epoch 96/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3671 - val_loss: 0.3988
Epoch 97/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3640 - val_loss: 0.4141
Epoch 98/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3878 - val_loss: 0.3999
Epoch 99/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3622 - val_loss: 0.3945
Epoch 100/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3599 - val_loss: 0.3975
```







TX_3 - True Future: [4286. 3538. 2934. 2939. 3135. 3486. 4202. 4575. 4262. 3141. 4091. 3421.
3664. 4432. 4905. 3707. 3825. 3831. 4438. 4198.]
TX_3 - Model Prediction: [3890.4287 3295.672 3008.013 2951.893 3021.3513 3435.763
4009.3904
4043.0994 3598.146 3307.0222 3277.831 3387.494 3802.7363 4327.838
4371.5356 3884.1936 3560.049 3413.963 3457.9084 3797.3726]
TX_3 - Model Percentage Error: [9.22938145 6.84929002 2.52259507 0.43868889
3.62515731 1.44110902
4.58376057 11.62624338 15.57611459 5.28564842 19.8770214 0.97942425
3.78647184 2.3502281 10.87592978 4.77997312 6.92682164 10.88585511
22.08408186 9.54329303]%

TX_3 - Model Mean Percentage Error: 7.663354441993991%
==========
==========
Model: "sequential_7"
_____
Layer (type) Output Shape Param #
==========
lstm_14 (LSTM) (None, 100, 32) 4352
_____
lstm_15 (LSTM) (None, 16) 3136
_____
dense_7 (Dense) (None, 20) 340
==========
Total params: 7,828
Trainable params: 7,828
Non-trainable params: 0
_____

Training Model for WI_1...

Epoch 1/100
50/50 [==========] - 5s 105ms/step - loss: nan - val_loss: nan
Epoch 2/100
50/50 [==========] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 3/100
50/50 [==========] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 4/100
50/50 [==========] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 5/100
50/50 [==========] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 6/100
50/50 [==========] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 7/100
50/50 [==========] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 8/100
50/50 [==========] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 9/100
50/50 [==========] - 5s 103ms/step - loss: nan - val_loss: nan
Epoch 10/100
50/50 [==========] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 11/100
50/50 [==========] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 12/100
50/50 [==========] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 13/100
50/50 [==========] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 14/100
50/50 [==========] - 5s 99ms/step - loss: nan - val_loss: nan

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Epoch 15/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 16/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 17/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 18/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 19/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 20/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 21/100
50/50 [==============================] - 5s 102ms/step - loss: nan - val_loss: nan
Epoch 22/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 23/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 24/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 25/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 26/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 27/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 28/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 29/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 30/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 31/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 32/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 33/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 34/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 35/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 36/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 37/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 38/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
```

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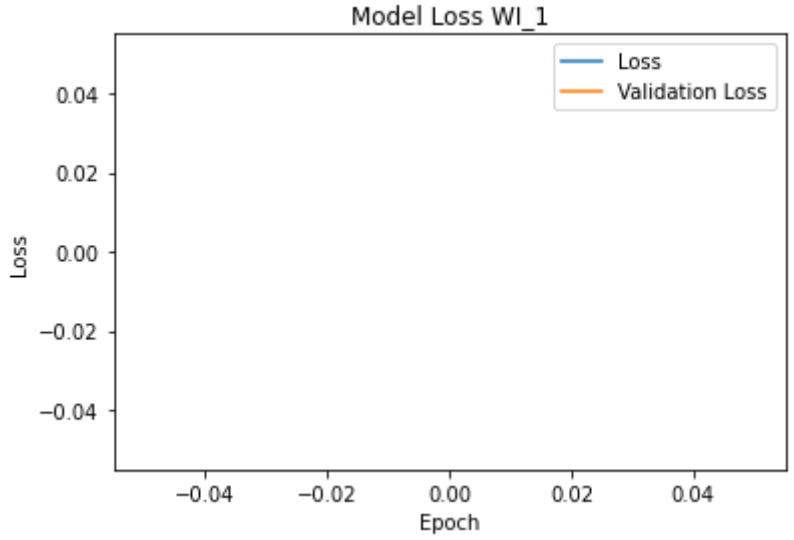
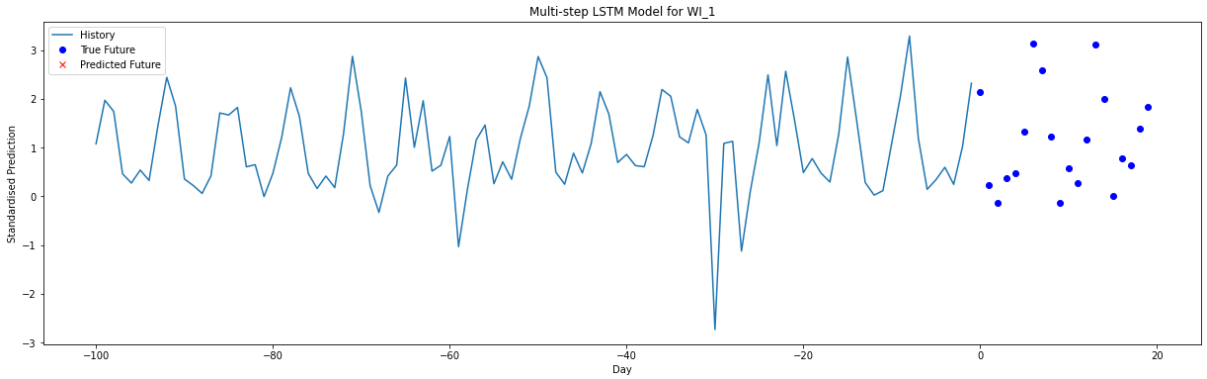
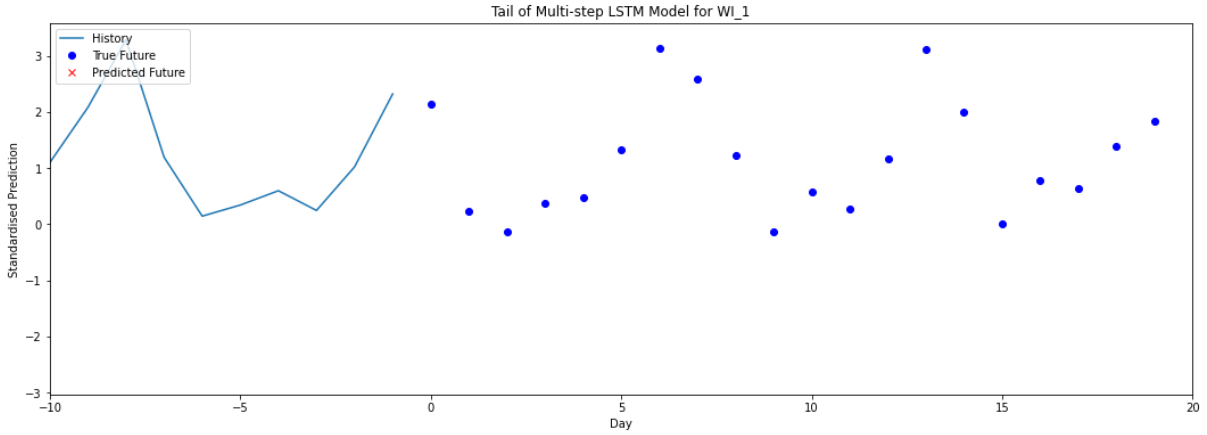
Epoch 39/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 40/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 41/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 42/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 43/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 44/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 45/100
50/50 [==============================] - 5s 103ms/step - loss: nan - val_loss: nan
Epoch 46/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 47/100
50/50 [==============================] - 5s 96ms/step - loss: nan - val_loss: nan
Epoch 48/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 49/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 50/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 51/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 52/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 53/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 54/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 55/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 56/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 57/100
50/50 [==============================] - 5s 96ms/step - loss: nan - val_loss: nan
Epoch 58/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 59/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 60/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 61/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 62/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
```

```
Epoch 63/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 64/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 65/100
50/50 [==============================] - 5s 103ms/step - loss: nan - val_loss: nan
Epoch 66/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 67/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 68/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 69/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 70/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 71/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 72/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 73/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 74/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 75/100
50/50 [==============================] - 5s 103ms/step - loss: nan - val_loss: nan
Epoch 76/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 77/100
50/50 [==============================] - 5s 102ms/step - loss: nan - val_loss: nan
Epoch 78/100
50/50 [==============================] - 7s 142ms/step - loss: nan - val_loss: nan
Epoch 79/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 80/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 81/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 82/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 83/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 84/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 85/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 86/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
```

```
Epoch 87/100
50/50 [==============================] - 5s 98ms/step - loss: nan - val_loss: nan
Epoch 88/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 89/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 90/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 91/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 92/100
50/50 [==============================] - 5s 96ms/step - loss: nan - val_loss: nan
Epoch 93/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 94/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 95/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 96/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
Epoch 97/100
50/50 [==============================] - 5s 97ms/step - loss: nan - val_loss: nan
Epoch 98/100
50/50 [==============================] - 5s 100ms/step - loss: nan - val_loss: nan
Epoch 99/100
50/50 [==============================] - 5s 101ms/step - loss: nan - val_loss: nan
Epoch 100/100
50/50 [==============================] - 5s 99ms/step - loss: nan - val_loss: nan
```







WI_1 - True Future: [4600. 2798. 2466. 2937. 3036. 3845. 5538. 5034. 3740. 2460. 3135. 2831.
 3676. 5516. 4461. 2597. 3313. 3180. 3899. 4308.]
WI_1 - Model Prediction: [nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan
 nan nan]
WI_1 - Model Percentage Error: [nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan nan
 nan nan]%
WI_1 - Model Mean Percentage Error: nan%
==========
==========
Model: "sequential_8"

Layer (type)	Output Shape	Param #
lstm_16 (LSTM)	(None, 100, 32)	4352
lstm_17 (LSTM)	(None, 16)	3136
dense_8 (Dense)	(None, 20)	340

Total params: 7,828
Trainable params: 7,828
Non-trainable params: 0

Training Model for WI_2...

Epoch 1/100
50/50 [==============================] - 5s 106ms/step - loss: 0.7998 - val_loss: 1.6209
Epoch 2/100
50/50 [==============================] - 5s 97ms/step - loss: 0.7664 - val_loss: 1.5292
Epoch 3/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6675 - val_loss: 1.3812
Epoch 4/100
50/50 [==============================] - 5s 99ms/step - loss: 0.5479 - val_loss: 1.2536
Epoch 5/100
50/50 [==============================] - 5s 104ms/step - loss: 0.5087 - val_loss: 1.1659
Epoch 6/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4888 - val_loss: 1.1023
Epoch 7/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4827 - val_loss: 1.0979
Epoch 8/100
50/50 [==============================] - 5s 97ms/step - loss: 0.4786 - val_loss: 1.0514
Epoch 9/100
50/50 [==============================] - 5s 97ms/step - loss: 0.4755 - val_loss: 1.0268
Epoch 10/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4708 - val_loss: 0.9849
Epoch 11/100
50/50 [==============================] - 5s 96ms/step - loss: 0.4664 - val_loss: 0.9214
Epoch 12/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4578 - val_loss: 0.9143
Epoch 13/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4524 - val_loss: 0.9294
Epoch 14/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4463 - val_loss: 0.9288
Epoch 15/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4394 - val_loss: 0.9301
Epoch 16/100
50/50 [==============================] - 5s 96ms/step - loss: 0.4314 - val_loss: 0.9295
Epoch 17/100
50/50 [==============================] - 5s 96ms/step - loss: 0.4221 - val_loss: 0.9462
Epoch 18/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4142 - val_loss: 0.9441
Epoch 19/100
50/50 [==============================] - 5s 97ms/step - loss: 0.4069 - val_loss: 0.9644
Epoch 20/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4018 - val_loss: 0.9667
Epoch 21/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3980 - val_loss: 0.9460
Epoch 22/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3927 - val_loss: 0.9119
Epoch 23/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3923 - val_loss: 0.9175

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Epoch 24/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3890 - val_loss: 0.9059
Epoch 25/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3862 - val_loss: 0.8889
Epoch 26/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3862 - val_loss: 0.8498
Epoch 27/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3839 - val_loss: 0.8708
Epoch 28/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3823 - val_loss: 0.8500
Epoch 29/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3821 - val_loss: 0.8295
Epoch 30/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3809 - val_loss: 0.8375
Epoch 31/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3794 - val_loss: 0.8309
Epoch 32/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3794 - val_loss: 0.8020
Epoch 33/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3789 - val_loss: 0.8048
Epoch 34/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3779 - val_loss: 0.8076
Epoch 35/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3766 - val_loss: 0.7854
Epoch 36/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3759 - val_loss: 0.7831
Epoch 37/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3768 - val_loss: 0.7709
Epoch 38/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3753 - val_loss: 0.7671
Epoch 39/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3744 - val_loss: 0.7561
Epoch 40/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3741 - val_loss: 0.7569
Epoch 41/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3740 - val_loss: 0.7490
Epoch 42/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3723 - val_loss: 0.7335
Epoch 43/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3731 - val_loss: 0.7421
Epoch 44/100
50/50 [==============================] - 6s 110ms/step - loss: 0.3728 - val_loss: 0.7284
Epoch 45/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3717 - val_loss: 0.7142
Epoch 46/100
50/50 [==============================] - 5s 104ms/step - loss: 0.3708 - val_loss: 0.7183
Epoch 47/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3707 - val_loss: 0.7065
```

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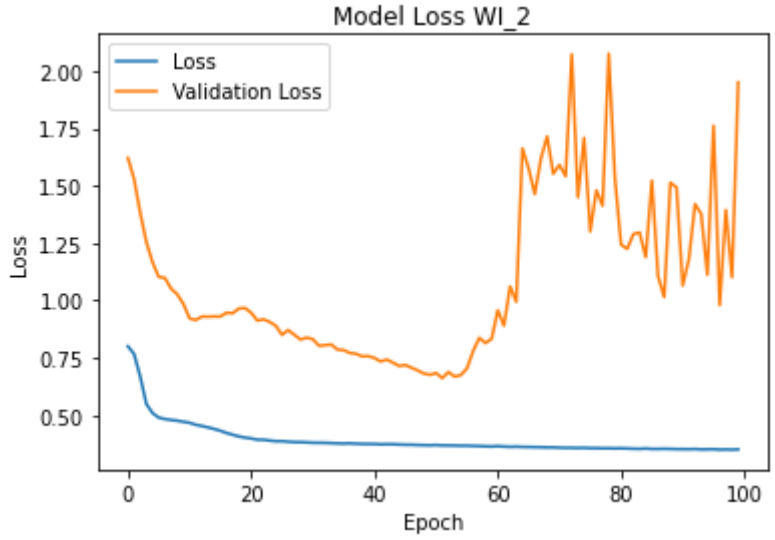
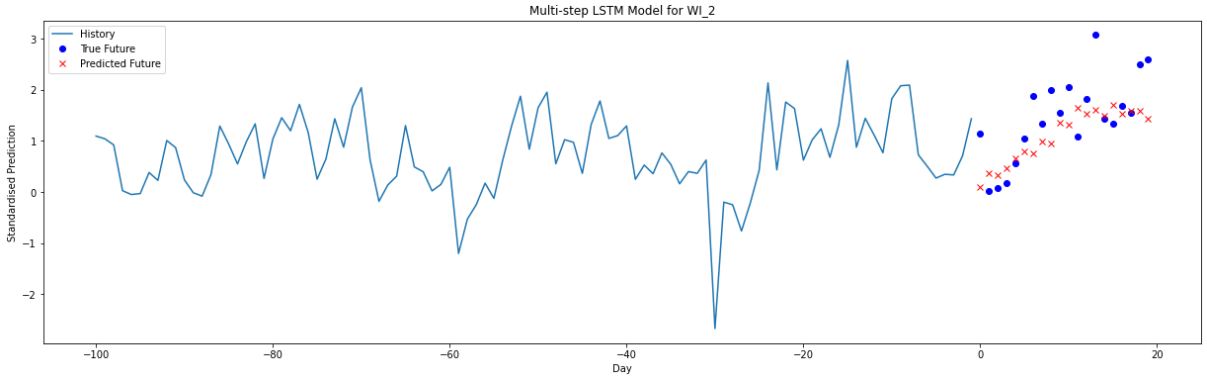
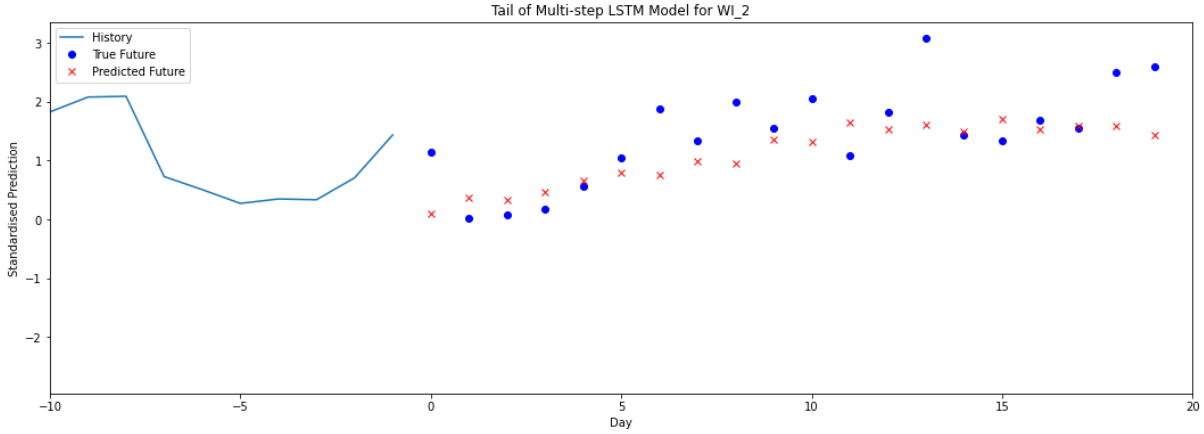
Epoch 48/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3695 - val_loss: 0.6948
Epoch 49/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3689 - val_loss: 0.6813
Epoch 50/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3685 - val_loss: 0.6756
Epoch 51/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3693 - val_loss: 0.6833
Epoch 52/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3678 - val_loss: 0.6611
Epoch 53/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3675 - val_loss: 0.6879
Epoch 54/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3673 - val_loss: 0.6677
Epoch 55/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3664 - val_loss: 0.6743
Epoch 56/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3666 - val_loss: 0.7035
Epoch 57/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3656 - val_loss: 0.7791
Epoch 58/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3649 - val_loss: 0.8364
Epoch 59/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3638 - val_loss: 0.8140
Epoch 60/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3630 - val_loss: 0.8322
Epoch 61/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3645 - val_loss: 0.9570
Epoch 62/100
50/50 [==============================] - 5s 103ms/step - loss: 0.3629 - val_loss: 0.8897
Epoch 63/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3615 - val_loss: 1.0607
Epoch 64/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3623 - val_loss: 0.9938
Epoch 65/100
50/50 [==============================] - 5s 104ms/step - loss: 0.3612 - val_loss: 1.6622
Epoch 66/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3609 - val_loss: 1.5755
Epoch 67/100
50/50 [==============================] - 5s 104ms/step - loss: 0.3602 - val_loss: 1.4634
Epoch 68/100
50/50 [==============================] - 5s 103ms/step - loss: 0.3601 - val_loss: 1.6187
Epoch 69/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3590 - val_loss: 1.7147
Epoch 70/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3592 - val_loss: 1.5521
Epoch 71/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3579 - val_loss: 1.5909
```

```
Epoch 72/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3572 - val_loss: 1.5414
Epoch 73/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3573 - val_loss: 2.0726
Epoch 74/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3566 - val_loss: 1.4493
Epoch 75/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3572 - val_loss: 1.7085
Epoch 76/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3559 - val_loss: 1.3007
Epoch 77/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3559 - val_loss: 1.4797
Epoch 78/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3552 - val_loss: 1.4127
Epoch 79/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3553 - val_loss: 2.0757
Epoch 80/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3546 - val_loss: 1.5331
Epoch 81/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3553 - val_loss: 1.2432
Epoch 82/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3543 - val_loss: 1.2244
Epoch 83/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3533 - val_loss: 1.2892
Epoch 84/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3529 - val_loss: 1.2962
Epoch 85/100
50/50 [==============================] - 5s 96ms/step - loss: 0.3543 - val_loss: 1.1883
Epoch 86/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3525 - val_loss: 1.5225
Epoch 87/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3525 - val_loss: 1.1055
Epoch 88/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3530 - val_loss: 1.0141
Epoch 89/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3525 - val_loss: 1.5133
Epoch 90/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3516 - val_loss: 1.4926
Epoch 91/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3517 - val_loss: 1.0645
Epoch 92/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3513 - val_loss: 1.1789
Epoch 93/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3520 - val_loss: 1.4198
Epoch 94/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3503 - val_loss: 1.3770
Epoch 95/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3508 - val_loss: 1.1111
```

```
Epoch 96/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3513 - val_loss: 1.7617
Epoch 97/100
50/50 [==============================] - 6s 126ms/step - loss: 0.3494 - val_loss: 0.9786
Epoch 98/100
50/50 [==============================] - 6s 111ms/step - loss: 0.3500 - val_loss: 1.3943
Epoch 99/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3493 - val_loss: 1.1008
Epoch 100/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3504 - val_loss: 1.9503
```







```
WI_2 - True Future: [4670. 3301. 3386. 3500. 3961. 4569. 5586. 4915. 5718. 5169. 5786. 4607.
 5506. 7046. 5046. 4907. 5358. 5180. 6333. 6463.]
WI_2 - Model Prediction: [3407.3179 3730.9277 3673.1982 3839.2295 4094.4307 4254.5283
4212.216
 4492.188  4439.4297 4947.9785 4905.7886 5292.851  5164.5747 5262.3745
 5113.811  5376.7793 5155.831  5237.971  5218.32   5040.101 ]
WI_2 - Model Percentage Error: [27.03816122 13.02416645  8.48193273  9.69227121
3.36861055  6.88272444
 24.59334371  8.60248244 22.36044618  4.27590413 15.21277957 14.8871516
  6.20096791 25.31401488  1.34385722  9.57365594  3.7732166   1.11913497
 17.60113968 22.01607498]%
WI_2 - Model Mean Percentage Error: 12.268101818786054%
==================================
==================================
Model: "sequential_9"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
lstm_18 (LSTM)               (None, 100, 32)           4352
_________________________________________________________________
lstm_19 (LSTM)               (None, 16)                3136
_________________________________________________________________
dense_9 (Dense)              (None, 20)                340
=================================================================
Total params: 7,828
Trainable params: 7,828
Non-trainable params: 0
_________________________________________________________________

Training Model for WI_3...

Epoch 1/100
50/50 [==============================] - 5s 106ms/step - loss: 0.7913 - val_loss: 0.9980
Epoch 2/100
50/50 [==============================] - 5s 98ms/step - loss: 0.7843 - val_loss: 0.9999
Epoch 3/100
50/50 [==============================] - 5s 98ms/step - loss: 0.7806 - val_loss: 0.9969
Epoch 4/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7718 - val_loss: 0.9851
Epoch 5/100
50/50 [==============================] - 5s 101ms/step - loss: 0.7609 - val_loss: 0.9564
Epoch 6/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7429 - val_loss: 0.9199
Epoch 7/100
50/50 [==============================] - 5s 101ms/step - loss: 0.7273 - val_loss: 0.8868
Epoch 8/100
50/50 [==============================] - 5s 101ms/step - loss: 0.7167 - val_loss: 0.8600
Epoch 9/100
```

```
50/50 [==============================] - 5s 98ms/step - loss: 0.7077 - val_loss: 0.8420
Epoch 10/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7022 - val_loss: 0.8329
Epoch 11/100
50/50 [==============================] - 5s 99ms/step - loss: 0.7000 - val_loss: 0.8281
Epoch 12/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6918 - val_loss: 0.8209
Epoch 13/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6868 - val_loss: 0.8163
Epoch 14/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6809 - val_loss: 0.8102
Epoch 15/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6749 - val_loss: 0.8067
Epoch 16/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6673 - val_loss: 0.8041
Epoch 17/100
50/50 [==============================] - 5s 98ms/step - loss: 0.6593 - val_loss: 0.8026
Epoch 18/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6501 - val_loss: 0.8032
Epoch 19/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6422 - val_loss: 0.7999
Epoch 20/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6344 - val_loss: 0.7983
Epoch 21/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6273 - val_loss: 0.7979
Epoch 22/100
50/50 [==============================] - 5s 100ms/step - loss: 0.6219 - val_loss: 0.7947
Epoch 23/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6179 - val_loss: 0.7886
Epoch 24/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6160 - val_loss: 0.7965
Epoch 25/100
50/50 [==============================] - 5s 104ms/step - loss: 0.6134 - val_loss: 0.7888
Epoch 26/100
50/50 [==============================] - 5s 104ms/step - loss: 0.6112 - val_loss: 0.7985
Epoch 27/100
50/50 [==============================] - 5s 106ms/step - loss: 0.6103 - val_loss: 0.7922
Epoch 28/100
50/50 [==============================] - 5s 105ms/step - loss: 0.6085 - val_loss: 0.7903
Epoch 29/100
50/50 [==============================] - 5s 102ms/step - loss: 0.6074 - val_loss: 0.7939
Epoch 30/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6065 - val_loss: 0.7890
Epoch 31/100
50/50 [==============================] - 5s 101ms/step - loss: 0.6051 - val_loss: 0.8170
Epoch 32/100
50/50 [==============================] - 5s 103ms/step - loss: 0.6041 - val_loss: 0.7924
Epoch 33/100
```

```
50/50 [==============================] - 5s 98ms/step - loss: 0.6083 - val_loss: 0.8063
Epoch 34/100
50/50 [==============================] - 5s 99ms/step - loss: 0.6019 - val_loss: 0.7985
Epoch 35/100
50/50 [==============================] - 5s 99ms/step - loss: 0.5990 - val_loss: 0.8072
Epoch 36/100
50/50 [==============================] - 5s 100ms/step - loss: 0.5982 - val_loss: 0.7947
Epoch 37/100
50/50 [==============================] - 5s 99ms/step - loss: 0.5970 - val_loss: 0.7851
Epoch 38/100
50/50 [==============================] - 5s 101ms/step - loss: 0.5952 - val_loss: 0.7884
Epoch 39/100
50/50 [==============================] - 5s 99ms/step - loss: 0.5904 - val_loss: 0.7648
Epoch 40/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5831 - val_loss: 0.7474
Epoch 41/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5645 - val_loss: 0.7190
Epoch 42/100
50/50 [==============================] - 5s 99ms/step - loss: 0.5402 - val_loss: 0.6456
Epoch 43/100
50/50 [==============================] - 5s 98ms/step - loss: 0.5093 - val_loss: 0.6236
Epoch 44/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4749 - val_loss: 0.5508
Epoch 45/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4561 - val_loss: 0.5560
Epoch 46/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4472 - val_loss: 0.5349
Epoch 47/100
50/50 [==============================] - 5s 97ms/step - loss: 0.4429 - val_loss: 0.5445
Epoch 48/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4391 - val_loss: 0.5241
Epoch 49/100
50/50 [==============================] - 5s 103ms/step - loss: 0.4347 - val_loss: 0.5258
Epoch 50/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4341 - val_loss: 0.5453
Epoch 51/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4316 - val_loss: 0.5163
Epoch 52/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4291 - val_loss: 0.5257
Epoch 53/100
50/50 [==============================] - 5s 103ms/step - loss: 0.4249 - val_loss: 0.5081
Epoch 54/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4270 - val_loss: 0.5441
Epoch 55/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4234 - val_loss: 0.5009
Epoch 56/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4217 - val_loss: 0.5250
Epoch 57/100
```

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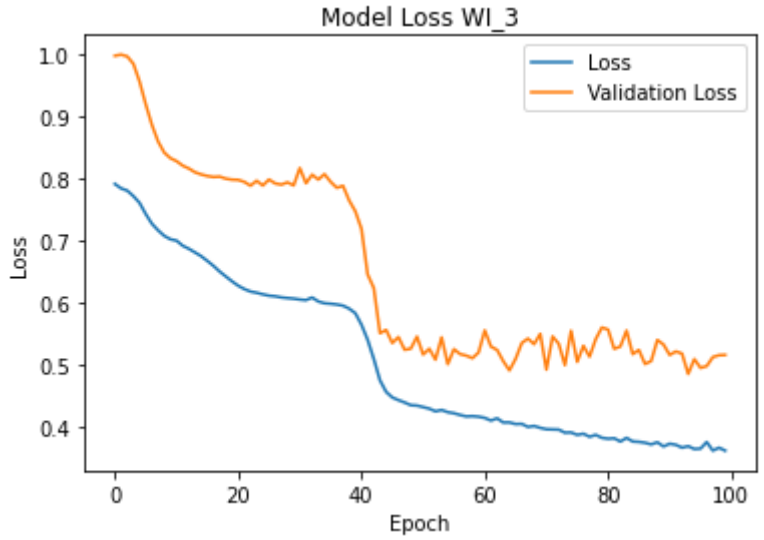
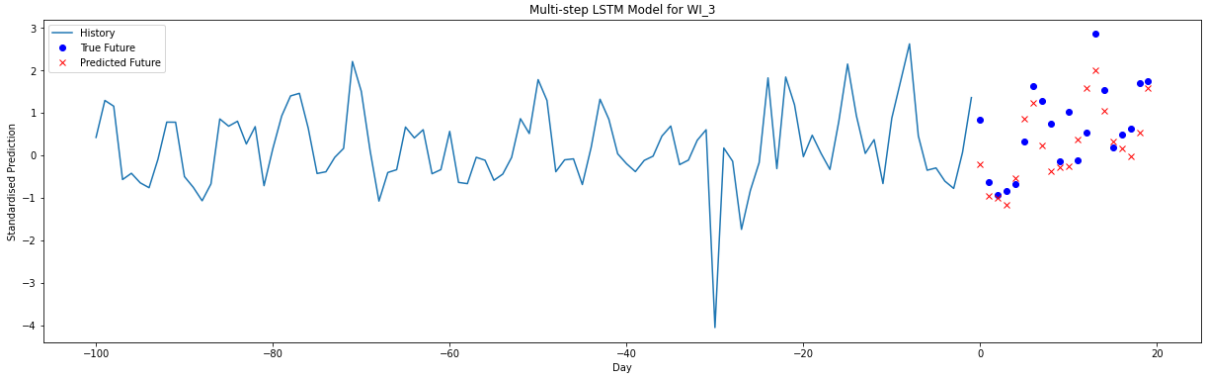
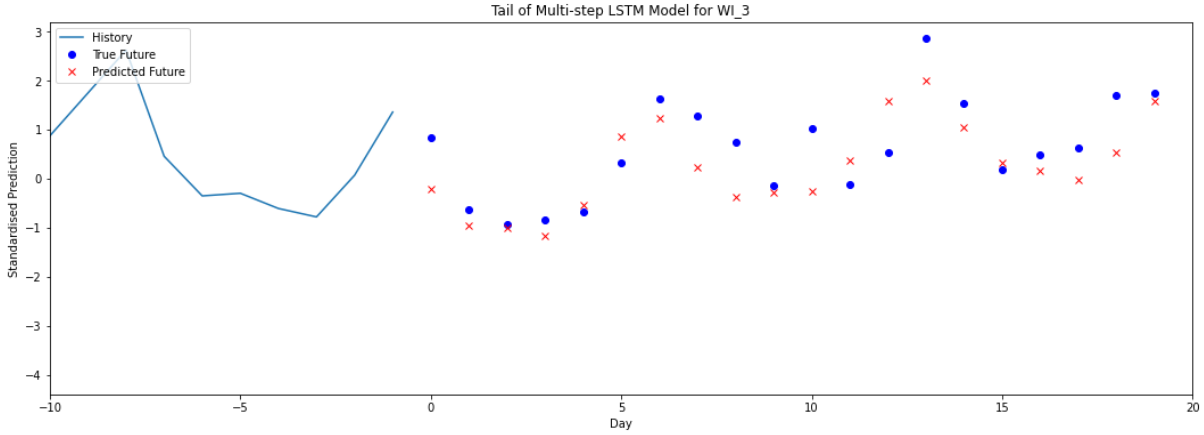
50/50 [==============================] - 5s 98ms/step - loss: 0.4189 - val_loss: 0.5171
Epoch 58/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4166 - val_loss: 0.5146
Epoch 59/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4170 - val_loss: 0.5105
Epoch 60/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4162 - val_loss: 0.5197
Epoch 61/100
50/50 [==============================] - 5s 100ms/step - loss: 0.4142 - val_loss: 0.5553
Epoch 62/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4099 - val_loss: 0.5292
Epoch 63/100
50/50 [==============================] - 5s 102ms/step - loss: 0.4135 - val_loss: 0.5238
Epoch 64/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4068 - val_loss: 0.5057
Epoch 65/100
50/50 [==============================] - 5s 98ms/step - loss: 0.4069 - val_loss: 0.4907
Epoch 66/100
50/50 [==============================] - 5s 101ms/step - loss: 0.4043 - val_loss: 0.5094
Epoch 67/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4046 - val_loss: 0.5349
Epoch 68/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3997 - val_loss: 0.5421
Epoch 69/100
50/50 [==============================] - 5s 99ms/step - loss: 0.4012 - val_loss: 0.5331
Epoch 70/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3982 - val_loss: 0.5497
Epoch 71/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3960 - val_loss: 0.4921
Epoch 72/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3957 - val_loss: 0.5455
Epoch 73/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3953 - val_loss: 0.5337
Epoch 74/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3904 - val_loss: 0.4993
Epoch 75/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3908 - val_loss: 0.5547
Epoch 76/100
50/50 [==============================] - 5s 98ms/step - loss: 0.3869 - val_loss: 0.5046
Epoch 77/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3887 - val_loss: 0.5304
Epoch 78/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3838 - val_loss: 0.5129
Epoch 79/100
50/50 [==============================] - 5s 104ms/step - loss: 0.3868 - val_loss: 0.5413
Epoch 80/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3821 - val_loss: 0.5599
Epoch 81/100
```

50/50 [==============================] - 5s 100ms/step - loss: 0.3806 - val_loss: 0.5567
Epoch 82/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3813 - val_loss: 0.5256
Epoch 83/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3761 - val_loss: 0.5293
Epoch 84/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3820 - val_loss: 0.5550
Epoch 85/100
50/50 [==============================] - 5s 103ms/step - loss: 0.3762 - val_loss: 0.5170
Epoch 86/100
50/50 [==============================] - 5s 105ms/step - loss: 0.3756 - val_loss: 0.5238
Epoch 87/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3742 - val_loss: 0.5011
Epoch 88/100
50/50 [==============================] - 5s 103ms/step - loss: 0.3715 - val_loss: 0.5058
Epoch 89/100
50/50 [==============================] - 5s 104ms/step - loss: 0.3749 - val_loss: 0.5398
Epoch 90/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3682 - val_loss: 0.5324
Epoch 91/100
50/50 [==============================] - 5s 102ms/step - loss: 0.3726 - val_loss: 0.5156
Epoch 92/100
50/50 [==============================] - 5s 103ms/step - loss: 0.3708 - val_loss: 0.5213
Epoch 93/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3663 - val_loss: 0.5179
Epoch 94/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3686 - val_loss: 0.4851
Epoch 95/100
50/50 [==============================] - 5s 104ms/step - loss: 0.3641 - val_loss: 0.5091
Epoch 96/100
50/50 [==============================] - 5s 100ms/step - loss: 0.3647 - val_loss: 0.4948
Epoch 97/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3753 - val_loss: 0.4977
Epoch 98/100
50/50 [==============================] - 5s 101ms/step - loss: 0.3615 - val_loss: 0.5122
Epoch 99/100
50/50 [==============================] - 5s 97ms/step - loss: 0.3661 - val_loss: 0.5153
Epoch 100/100
50/50 [==============================] - 5s 99ms/step - loss: 0.3614 - val_loss: 0.5157







WI_3 - True Future: [3998. 2806. 2564. 2632. 2775. 3580. 4653. 4362. 3938. 3210. 4153. 3219.
3756. 5657. 4577. 3468. 3728. 3833. 4721. 4759.]
WI_3 - Model Prediction: [3154.5981 2538.5852 2507.8855 2365.0693 2879.7893 4023.5117
4327.9727
3516.1267 3019.6243 3088.81 3116.8713 3630.8552 4623.9165 4967.118
4170.9233 3581.0745 3449.7378 3305.877 3767.566 4617.9155]
WI_3 - Model Percentage Error: [21.09559418 9.53010673 2.18855312 10.14174256
3.77619123 12.3885955
6.98532869 19.3918682 23.32086675 3.77538758 24.94892035 12.79450838
23.10746816 12.1951889 8.87211405 3.26050931 7.464115 13.75223185
20.19559589 2.96458232]%

WI_3 - Model Mean Percentage Error: 12.10747343664389%
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