In [7]:
```
import pandas as pd
import matplotlib.pyplot as plt
data = pd.read_csv('FremontBridge.csv',index_col = 'Date', parse_dates = True)
data.columns = ['Total','East','West']
data.head()
```

Out[7]:

Date	Total	East	West
2019-11-01 00:00:00	12.0	7.0	5.0
2019-11-01 01:00:00	7.0	0.0	7.0
2019-11-01 02:00:00	1.0	0.0	1.0
2019-11-01 03:00:00	6.0	6.0	0.0
2019-11-01 04:00:00	6.0	5.0	1.0

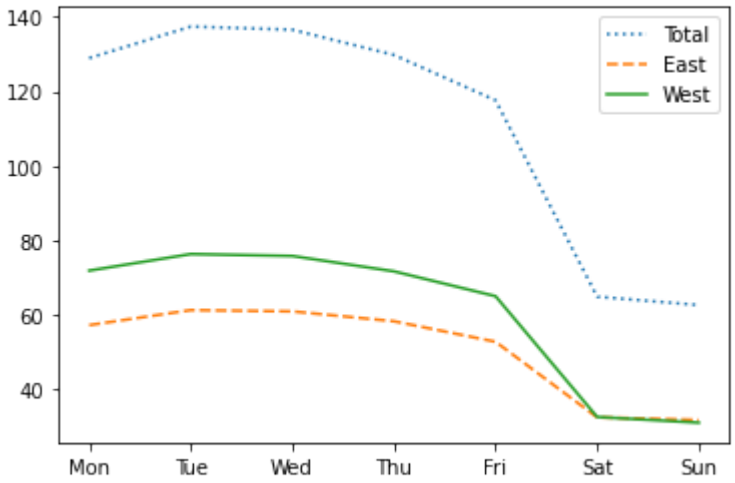
In [6]:
```
# i) Average daily bicycle counts

avg_daily_count = data.groupby(data.index.dayofweek).mean()
print(avg_daily_count)

avg_daily_count.index = ['Mon','Tue','Wed','Thu','Fri','Sat','Sun']
avg_daily_count.plot(style = [':','--','-'])
```

```
           Total       East       West
Date
0     128.942967  57.141598  71.801369
1     137.427155  61.175774  76.251381
2     136.576050  60.836447  75.739603
3     129.781730  58.179309  71.602420
4     117.590246  52.669803  64.920443
5      64.786742  32.339293  32.447449
6      62.538935  31.630508  30.908428
```

Out[6]:
```
<AxesSubplot:>
```



In [11]:
```
# ii) Average hourly bicycle counts by weekday and weekend.

import numpy as np
days = np.where(data.index.dayofweek < 5, 'Weekday','Weekend')

avg_hourly_count = data.groupby([days,data.index.time]).mean()
print(avg_hourly_count)

avg_hourly_count.loc['Weekday'].plot(title = 'Weekdays', style = [':','--','-'])
avg_hourly_count.loc['Weekend'].plot(title = 'Weekends', style = [':','--','-'])
```

		Total	East	West
Weekday	00:00:00	9.192817	3.934074	5.258743
	01:00:00	4.555293	2.039698	2.515595
	02:00:00	3.034972	1.489130	1.545841
	03:00:00	2.602316	1.355860	1.246456
	04:00:00	7.428403	4.074669	3.353733
	05:00:00	32.180766	19.745747	12.435019
	06:00:00	115.899102	70.033554	45.865548
	07:00:00	295.413516	183.724008	111.689509
	08:00:00	412.670605	243.398866	169.271739
	09:00:00	224.206619	121.508747	102.697872
	10:00:00	98.592435	50.811584	47.780851
	11:00:00	76.071158	39.116785	36.954374
	12:00:00	79.582979	39.792908	39.790071
	13:00:00	86.116966	41.961248	44.155718
	14:00:00	97.841409	44.694398	53.147010
	15:00:00	140.192862	58.452848	81.740014
	16:00:00	268.633893	89.173481	179.460411
	17:00:00	487.315528	133.151028	354.164500
	18:00:00	328.060506	106.142283	221.918223
	19:00:00	156.417868	57.060978	99.356890
	20:00:00	86.377688	34.086504	52.291184
	21:00:00	53.922713	23.171827	30.750886
	22:00:00	34.047743	14.460648	19.587095
	23:00:00	21.257386	8.650201	12.607185
Weekend	00:00:00	15.555556	6.446217	9.109338
	01:00:00	8.965130	3.982861	4.982270
	02:00:00	5.795590	2.680572	3.115018
	03:00:00	3.364066	1.684988	1.679078
	04:00:00	3.722813	1.537234	2.185579
	05:00:00	7.294326	3.855792	3.438534
	06:00:00	16.761229	7.844563	8.916667
	07:00:00	32.286052	16.521277	15.764775
	08:00:00	59.615839	30.942671	28.673168
	09:00:00	82.055556	42.452128	39.603428
	10:00:00	100.900118	53.221040	47.679078
	11:00:00	122.648936	63.338652	59.310284
	12:00:00	136.280733	69.575650	66.705083
	13:00:00	144.159574	73.086879	71.072695
	14:00:00	147.959811	74.962175	72.997636
	15:00:00	146.135343	73.854019	72.281324
	16:00:00	133.787825	67.186170	66.601655
	17:00:00	110.265957	54.763002	55.502955
	18:00:00	84.546690	42.114657	42.432033

```
              19:00:00   57.014184   27.992317   29.021868
              20:00:00   41.019504   19.315012   21.704492
              21:00:00   28.886525   13.406028   15.480496
              22:00:00   21.548463    9.671395   11.877069
              23:00:00   16.868794    6.962766    9.906028
```

Out[11]: <AxesSubplot:title={'center':'Weekends'}, xlabel='time'>