First, we'll import the required libraries: CSV, Datetime and Regex (re):

```
#import libraries
import csv
import datetime as dt
import re

```

Open the original CSV file, we read it as key-value (dict reader):

```
with open('fitness-analysis.csv', mode='r', newline='') as csvfile: #open file
    reader = csv.DictReader(csvfile) #parse CSV into key value pair
```

Create a new CSV file (result):

```

    with open('result.csv', mode='w', newline='') as newfile: #write file

```

Create column (keys) for the new CSV file:

```
        fieldnames = [
        'Date',
        'Time',
        'Your name',
        'Your gender',
        'Your age (min)',
        'Your age (max)',
        'How important is exercise to you?',
        'How do you describe your current level of fitness?',
        'How often do you exercise? (Min)',
        'How often do you exercise? (Max)',
        'What barriers, if any, prevent you from exercising more regularly?',
        'What form(s) of exercise do you currently participate in?',
        'Do you exercise?',
        'What time if the day do you prefer to exercise?',
        'How long do you spend exercising per day?',
        'Would you say you eat a healthy balanced diet?',
        'What prevents you from eating a healthy balanced diet, If any?',
        'How healthy do you consider yourself?',
        'Have you ever recommended your friends to follow a fitness routine?',
        'Have you ever purchased a fitness equipment?',
        'What motivates you to exercise?'
        ] #key value for new csv file
        writer = csv.DictWriter(newfile, fieldnames=fieldnames) #write csv by key value
        writer.writeheader() #write header (keys)
```

Then, read each row of the original CSV file and get the required values.

As for time format, we just separate the date and time:

```

        for row in reader:

            datetime = row['Timestamp'].split('GMT')[0].strip() #remove GMT
            datetimeFormat = dt.datetime.strptime(datetime, "%Y/%m/%d %H:%M:%S %p") #dat
            date = datetimeFormat.strftime('%Y/%m/%d')
            time = datetimeFormat.strftime('%H:%M:%S')


```

For age, we will split into two columns of lowest and highest age (min and max). We use Regex to get the age values, for example “19 to 25”, the min value is 19, the max is 25. Or if the row has only min value (example: 40 and above) then the max value will be 100.

```
45
46          age = row['Your age']
47          ageMin = 0
48          ageMax = 100
49          reAge = re.search('^([0-9]+) to ([0-9]+)$', age) #using regex to search the
50          if (reAge):
51              result = re.findall('^([0-9]+) to ([0-9]+)$', age)[0] #returns a list co
52              ageMin = result[0] #min is the first element in the list
53              ageMax = result[-1] #max is the last element in the list
54          else:
55              result = re.findall('^([0-9]+) and above$', age)[0]
56              ageMin = result
57
58
```

For the number of workouts per week, we also split into two columns min and max. Both the min and max columns will be 0 if the value in the row is "Nerver", and 7 if "Everyday". If there are exercise counts, continue to use Regex to get the min and max values.

```
58
59          often = row['How often do you exercise?']
60          oftenMin = 0 if often == 'Never' else 7 if often == 'Everyday' else re.finda
61          oftenMax = 0 if often == 'Never' else 7 if often == 'Everyday' else re.finda
62
```

As for the time to exercise each time, it would initially be zero if he never went to exercise. Use Regex to check (search), if row has exercise time, switch to minutes format.

```
63
64          exercisingTime = 0
65          if (re.search('^([0-9]+) (.+)+$', row['How long do you spend exercising per
66              result = re.findall('^([0-9]+) (.+)+$', row['How long do you spend exerc
67              if (result[-1] == 'minutes'):
68                  exercisingTime = result[0]
69              elif (result[-1] == 'hour' or result[-1] == 'hours'):
70                  exercisingTime = int(result[0]) * 60 #convert into minute
71
72
```

Finally, write the rows into the new CSV file as key-value:

```
        writer.writerow({
        'Date': date,
        'Time': time,
        'Your name': row['Your name'],
        'Your gender': row['Your gender'],
        'Your age (min)': ageMin,
        'Your age (max)': ageMax,
        'How important is exercise to you?': row['How important is exercise to you?'],
        'How do you describe your current level of fitness?': row['How do you describe y
        'How often do you exercise? (Min)': oftenMin,
        'How often do you exercise? (Max)': oftenMax,
        'What barriers, if any, prevent you from exercising more regularly?': row['What
        'What form(s) of exercise do you currently participate in?': row['What form(s) o
        'Do you exercise?': row['Do you exercise?'],
        'What time if the day do you prefer to exercise?': row['What time if the day do
        'How long do you spend exercising per day?': exercisingTime,
        'Would you say you eat a healthy balanced diet?': row['Would you say you eat a h
        'What prevents you from eating a healthy balanced diet, If any?': row['What prev
        'How healthy do you consider yourself?': row['How healthy do you consider yourse
        'Have you ever recommended your friends to follow a fitness routine?': row['Have
        'Have you ever purchased a fitness equipment?': row['Have you ever purchased a f
        'What motivates you to exercise?': row['What motivates you to exercise?']
        }) #write rows to new csv file
```