**Washington State University  
MIS 420 – Business Intelligence Online**

Mauricio Featherman, Ph.D.

**T-SQL #2**

Name: Nam Jun Lee

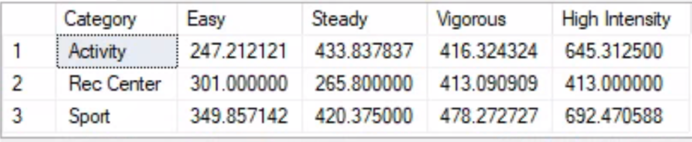
Student Number: 11606459

**Introduction**

The project was requested by the administrator of the Pullman Fitness Center (PFC) and focuses on providing each training plan for each of the four average weight groups. Non-sports activities are filtered from the provided 'Featherman.Exercise' dataset and a list of recommendations for each weight category is compiled based on a schedule of two hours per day/six days a week, using a combination of activity categories and speeds. The goal is to provide a recommended activity plan for each of the four average weight groups to achieve the goal of consuming 5000 calories a week.

**Average 130lb Group**

**Average caloric burn for 130lb of category and pace:**

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The table above shows that the Sport category burns more calories on average than other categories. In addition, there is no correlation between pace and calorie burn in the case of a Rec Center.

**Activity Schedule:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Avg. Activity | Hours | Days | Hours Per Week | Calories Burned  Per Day | | | Calories Burned  per Week |
| Steady Activity | 434 | 1 | MWF | 3 | | 434 | 1302 | |
| Steady Sport | 420 | 1 | MWF | 3 | | 420 | 1260 | |
|  | *Total Calories burned for MWF:* *2562* | | | | | | | |
| Easy Sport | 350 | 1 | T/TH | 2 | | 350 | 700 | |
| High Intensity  Activity | 645 | 1 | T/TH | 2 | | 645 | 1290 | |
|  | *Total Calories burned for T/TH: 1990* | | | | | | | |
| Easy RecCenter | 301 | 2 | SAT | 2 | | 301 | 602 | |
|  | *Total Calories burned for SAT: 602* | | | | | | | |
| Total Calories burned for Week: 5154 | | | | | | | | |

**List of Actions:**

MWF:

텍스트이(가) 표시된 사진

자동 생성된 설명텍스트이(가) 표시된 사진

자동 생성된 설명

T/TH:

텍스트이(가) 표시된 사진

자동 생성된 설명텍스트이(가) 표시된 사진

자동 생성된 설명

SAT:

텍스트이(가) 표시된 사진

자동 생성된 설명

**Activity Recommendation Plan:** (hit the goal of **5000** calories burned per week)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Activity | Hours | Days | Hours Per Week | Calories Burned  Per Day | | | Calories Burned  per Week |
| Steady  Activity | Ice skating,  < 9 mph | 1 | MWF | 3 | | 325 | 975 | |
| Steady Sport | Tennis,  singles | 1 | MWF | 3 | | 472 | 1416 | |
|  | *Total Calories burned for MWF:* *2391* | | | | | | | |
| Easy Sport | Playing  soccer | 1 | T/TH | 2 | | 413 | 826 | |
| High Intensity  Activity | Martial arts,  TaekWanDo | 1 | T/TH | 2 | | 590 | 1180 | |
|  | *Total Calories burned for T/TH: 2006* | | | | | | | |
| Easy  RecCenter | Aerobics,  general | 2 | SAT | 2 | | 384 | 768 | |
|  | *Total Calories burned for SAT: 768* | | | | | | | |
| **Total Calories burned for Week: 5165** | | | | | | | | |

**Average 155lb Group**

**Average caloric burn for 155lb of category and pace:**

**테이블이(가) 표시된 사진

자동 생성된 설명**

The table above shows that Sport category consumes more calories on average than other categories. Also, in the case of the Sport category, calorie burn increases as the pace increases. Relatively, the Rec Center category burns the least calories than the other categories.

**Activity Schedule:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Avg. Activity | Hours | Days | Hours Per Week | Calories Burned  Per Day | | | Calories Burned  per Week |
| Easy RecCenter | 359 | 1 | MWF | 3 | | 359 | 1077 | |
| Steady Sport | 501 | 1 | MWF | 3 | | 501 | 1503 | |
|  | *Total Calories burned for MWF:* 2580 | | | | | | | |
| Easy Sport | 417 | 1 | T/TH | 2 | | 417 | 834 | |
| Vigorous Sport | 570 | 1 | T/TH | 2 | | 570 | 1140 | |
|  | *Total Calories burned for T/TH: 1974* | | | | | | | |
| Easy Activity | 295 | 2 | SAT | 2 | | 295 | 590 | |
|  | *Total Calories burned for SAT: 590* | | | | | | | |
| Total Calories burned for Week: 5144 | | | | | | | | |

**List of Actions:**

MWF:

텍스트이(가) 표시된 사진

자동 생성된 설명텍스트이(가) 표시된 사진

자동 생성된 설명

T/TH:

텍스트이(가) 표시된 사진

자동 생성된 설명

SAT:

텍스트이(가) 표시된 사진

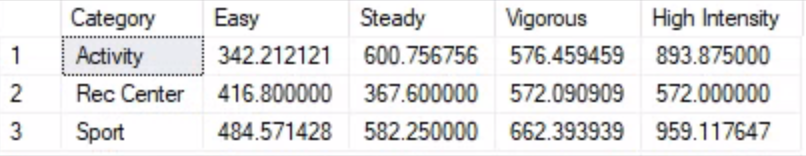
자동 생성된 설명

**Activity Recommendation Plan:** (hit the goal of **5000** calories burned per week)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Activity | Hours | Days | Hours Per Week | Calories Burned  Per Day | | | Calories Burned  per Week |
| Easy RecCenter | Aerobics,  low impact | 1 | MWF | 3 | | 352 | 1056 | |
| Steady Sport | Playing  tennis | 1 | MWF | 3 | | 493 | 1479 | |
|  | *Total Calories burned for MWF:* *2535* | | | | | | | |
| Easy Sport | Race  walking | 1 | T/TH | 2 | | 457 | 914 | |
| Vigorous  Sport | Swimming  sidestroke | 1 | T/TH | 2 | | 563 | 1126 | |
|  | *Total Calories burned for T/TH: 2040* | | | | | | | |
| Easy  Activity | Walking  crutches | 2 | SAT | 2 | | 352 | 704 | |
|  | *Total Calories burned for SAT: 704* | | | | | | | |
| **Total Calories burned for Week: 5279** | | | | | | | | |

**Average 180lb Group**

**Average caloric burn for 180lb of category and pace:**

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The table above shows that sports categories burn on average more calories than other categories, and calorie burn increases as the pace increases. In addition, in the case of a Rec Center, calorie burn is lower than in other categories except that pace is easy.

**Activity Schedule:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Avg. Activity | Hours | Days | Hours Per Week | Calories Burned  Per Day | | | Calories Burned  per Week |
| Easy RecCenter | 417 | 1 | MWF | 3 | | 417 | 1251 | |
| Easy Activity | 342 | 1 | MWF | 3 | | 342 | 1026 | |
|  | *Total Calories burned for MWF:* *2277* | | | | | | | |
| Easy Sport | 485 | 1 | T/TH | 2 | | 485 | 970 | |
| Steady Sport | 582 | 1 | T/TH | 2 | | 582 | 1164 | |
|  | *Total Calories burned for T/TH: 2134* | | | | | | | |
| Steady Activity | 601 | 2 | SAT | 2 | | 601 | 1202 | |
|  | *Total Calories burned for SAT: 1202* | | | | | | | |
| Total Calories burned for Week: 5613 | | | | | | | | |

**List of Actions:**

MWF:

텍스트이(가) 표시된 사진

자동 생성된 설명텍스트이(가) 표시된 사진

자동 생성된 설명

T/TH:

테이블이(가) 표시된 사진

자동 생성된 설명텍스트이(가) 표시된 사진

자동 생성된 설명

SAT:

텍스트이(가) 표시된 사진

자동 생성된 설명

**Activity Recommendation Plan:** (hit the goal of **5000** calories burned per week)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Activity | Hours | Days | Hours Per Week | Calories Burned  Per Day | | | Calories Burned  per Week |
| Easy  RecCenter | Aerobics,  low impact | 1 | MWF | 3 | | 409 | 1227 | |
| Easy Activity | Golf,  Walk&Pull | 1 | MWF | 3 | | 351 | 1053 | |
|  | *Total Calories burned for MWF:* *2280* | | | | | | | |
| Easy Sport | Race  walking | 1 | T/TH | 2 | | 531 | 1062 | |
| Steady Sport | Tennis,  singles | 1 | T/TH | 2 | | 654 | 1308 | |
|  | *Total Calories burned for T/TH: 2370* | | | | | | | |
| Steady  Activity | Skateboarding | 2 | SAT | 2 | | 409 | 818 | |
|  | *Total Calories burned for SAT: 818* | | | | | | | |
| **Total Calories burned for Week: 5468** | | | | | | | | |

**Average 205lb Group**

**Average caloric burn for 205lb of category and pace:**

테이블이(가) 표시된 사진

자동 생성된 설명

The table above shows that Sport category burns more calories on average than other categories and calorie burn increases as the pace increases. Also, relatively, the Rec Center category burns the least calories than the other categories.

**Activity Schedule:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Avg. Activity | Hours | Days | Hours Per Week | Calories Burned  Per Day | | | Calories Burned  per Week |
| Easy RecCenter | 474 | 1 | MWF | 3 | | 474 | 1422 | |
| Easy Activity | 390 | 1 | MWF | 3 | | 390 | 1170 | |
|  | *Total Calories burned for MWF:* *2592* | | | | | | | |
| Steady Activity | 684 | 1 | T/TH | 2 | | 684 | 1368 | |
| Steady Sport | 663 | 1 | T/TH | 2 | | 663 | 1326 | |
|  | *Total Calories burned for T/TH: 2694* | | | | | | | |
| Easy Sport | 551 | 2 | SAT | 2 | | 551 | 1102 | |
|  | *Total Calories burned for SAT: 1102* | | | | | | | |
| Total Calories burned for Week: 6388 | | | | | | | | |

**List of Actions:**

MWF:

텍스트이(가) 표시된 사진

자동 생성된 설명텍스트이(가) 표시된 사진

자동 생성된 설명

T/TH:

텍스트이(가) 표시된 사진

자동 생성된 설명텍스트이(가) 표시된 사진

자동 생성된 설명

SAT:

텍스트이(가) 표시된 사진

자동 생성된 설명

**Activity Recommendation Plan:** (hit the goal of **5000** calories burned per week)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Activity | Hours | Days | Hours Per Week | Calories Burned  Per Day | | | Calories Burned  per Week |
| Easy  RecCetner | Aerobics,  low impact | 1 | MWF | 3 | | 465 | 1395 | |
| Easy Activity | Walking  2.5 mph | 1 | MWF | 3 | | 279 | 837 | |
|  | *Total Calories burned for MWF:* *2232* | | | | | | | |
| Steady  Activity | Wallyball | 1 | T/TH | 2 | | 651 | 1302 | |
| Steady Sport | Softball,  pitching | 1 | T/TH | 2 | | 558 | 1116 | |
|  | *Total Calories burned for T/TH: 2418* | | | | | | | |
| Easy Sport | Track & Field  (shot, discus) | 2 | SAT | 2 | | 372 | 744 | |
|  | *Total Calories burned for SAT: 744* | | | | | | | |
| **Total Calories burned for Week: 5394** | | | | | | | | |

**Conclusion**

As a result of analyzing the average caloric burn for each average weight group combination of category and the pace, it can be confirmed that the Sport category generally burns more calories than the Activities and the Rec Center categories. In addition, it was found that the higher the average weight, the more calories burned even with the same physical activity. And unlike what I thought, a faster pace didn't increase calorie burn.

**Appendix**

USE [Featherman\_Analytics];

**130lb Group**

-- PIVOT statements to analyze the avg. 130lb caloric burn for each combination of category and pace

SELECT \* FROM

(SELECT [Category],[CaloricBurn-130lber] as [130lb],[Pace]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1) AS Base130lbTable

PIVOT

(AVG([130lb]) FOR [Pace] IN ([Easy], [Steady], [Vigorous], [High Intensity])) AS Pivottable

-- Steady Activity

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-130lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Activity' AND [Pace] = 'Steady') ORDER BY newid()

-- High Intensity Activity

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-130lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Activity' AND [Pace] = 'High Intensity') ORDER BY newid()

-- Easy Sport

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-130lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Sport' AND [Pace] = 'Easy') ORDER BY newid()

-- Steady Sport

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-130lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Sport' AND [Pace] = 'Steady') ORDER BY newid()

-- Easy Rec Center

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-130lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Rec Center' AND [Pace] = 'Easy') ORDER BY newid()

**155lb Group**

--PIVOT statements to analyze the avg. 155lb caloric burn for each combination of category and pace

SELECT \* FROM

(SELECT [Category],[CaloricBurn-155lber] as [155lb],[Pace]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1) AS Base155lbTable

PIVOT

(AVG([155lb]) FOR [Pace] IN ([Easy], [Steady], [Vigorous], [High Intensity])) AS Pivottable

-- Easy Rec Center

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-155lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Rec Center' AND [Pace] = 'Easy') ORDER BY newid()

-- Steady Sport

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-155lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Sport' AND [Pace] = 'Steady') ORDER BY newid()

-- Easy Sport

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-155lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Sport' AND [Pace] = 'Easy') ORDER BY newid()

-- Vigorous Sport

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-155lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Sport' AND [Pace] = 'Vigorous') ORDER BY newid()

-- Easy Activity

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-155lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Activity' AND [Pace] = 'Easy') ORDER BY newid()

**180lb Group**

-- PIVOT statements to analyze the avg. 180lb caloric burn for each combination of category and pace

SELECT \* FROM

(SELECT [Category],[CaloricBurn-180lber] as [180lb],[Pace]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1) AS Base180lbTable

PIVOT

(AVG([180lb]) FOR [Pace] IN ([Easy], [Steady], [Vigorous], [High Intensity])) AS Pivottable

-- Easy Rec Center

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-180lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Rec Center' AND [Pace] = 'Easy') ORDER BY newid()

-- Steady Sport

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-180lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Activity' AND [Pace] = 'Easy') ORDER BY newid()

-- Easy Sport

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-180lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Sport' AND [Pace] = 'Easy') ORDER BY newid()

-- Steady Activity

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-180lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Sport' AND [Pace] = 'Steady') ORDER BY newid()

-- Easy Activity

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-180lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Activity' AND [Pace] = 'Steady') ORDER BY newid()

**205lb Group**

-- PIVOT statements to analyze the avg. 205lb caloric burn for each combination of category and pace

SELECT \* FROM

(SELECT [Category],[CaloricBurn-205lber] as [205lb],[Pace]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1) AS Base205lbTable

PIVOT

(AVG([205lb])

FOR [Pace] IN ([Easy], [Steady], [Vigorous], [High Intensity])) AS Pivottable

-- Easy Rec Center

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-205lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Rec Center' AND [Pace] = 'Easy') ORDER BY newid()

-- Steady Sport

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-205lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Activity' AND [Pace] = 'Easy') ORDER BY newid()

-- Easy Sport

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-205lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Activity' AND [Pace] = 'Steady') ORDER BY newid()

-- Steady Activity

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-205lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Sport' AND [Pace] = 'Steady') ORDER BY newid()

-- Easy Activity

SELECT TOP 3 [Category],[Pace],[Activity-1hr],[CaloricBurn-205lber] as [CalBurn]

FROM [featherman].[Exercise]

WHERE [Exercise?] = 1 AND ([Category] = 'Sport' AND [Pace] = 'Easy') ORDER BY newid()