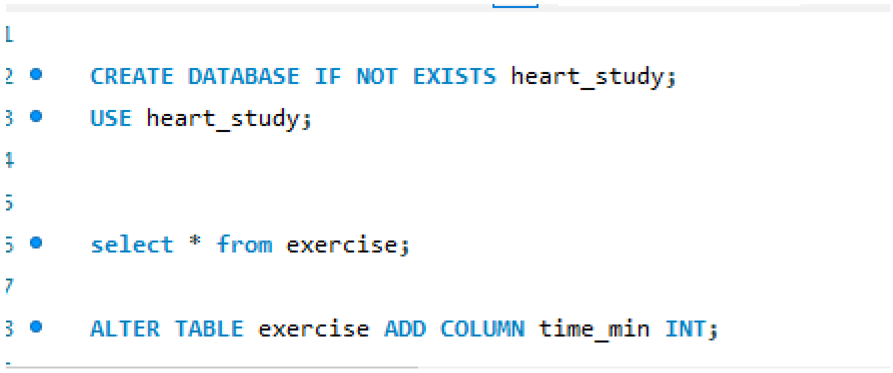
Pulse Analysis

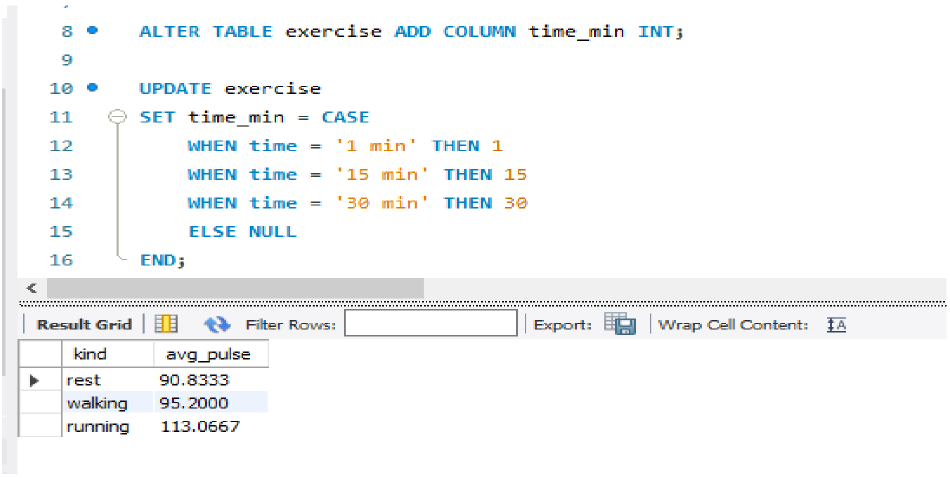
Clean the Data



```sql
CREATE DATABASE IF NOT EXISTS heart_study;
USE heart_study;


select * from exercise;

ALTER TABLE exercise ADD COLUMN time_min INT;
```

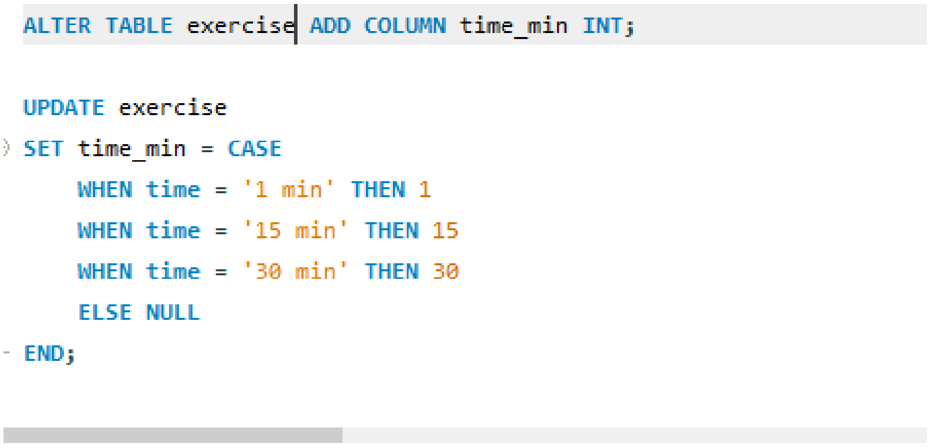


```sql
ALTER TABLE exercise ADD COLUMN time_min INT;

UPDATE exercise
SET time_min = CASE
    WHEN time = '1 min' THEN 1
    WHEN time = '15 min' THEN 15
    WHEN time = '30 min' THEN 30
    ELSE NULL
END;
```

kind	avg_pulse
rest	90.8333
walking	95.2000
running	113.0667

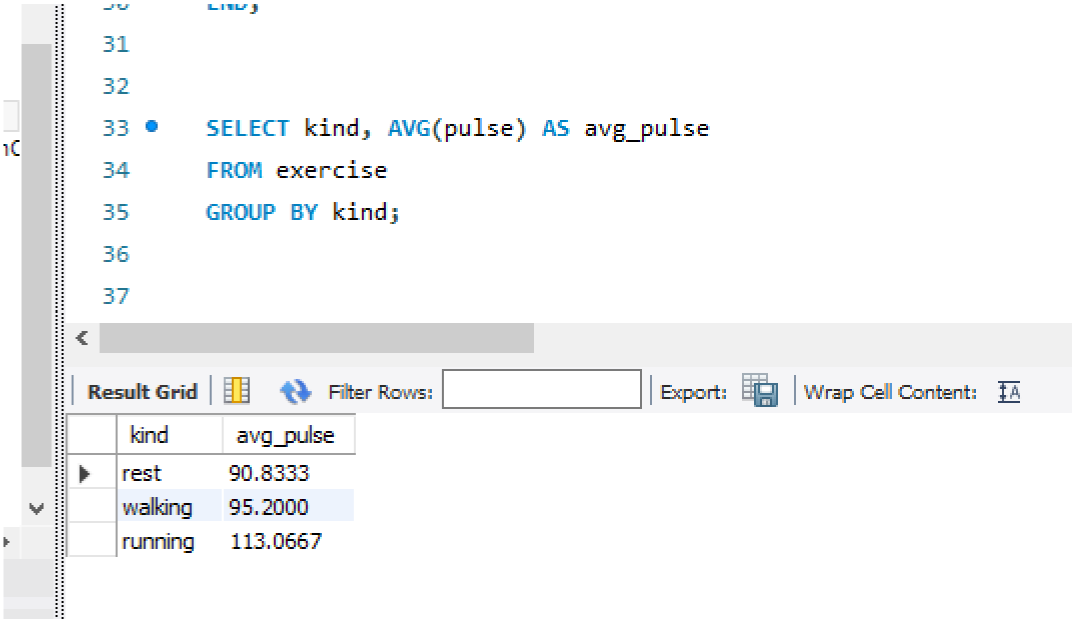
Analysis Queries



```sql
ALTER TABLE exercise ADD COLUMN time_min INT;

UPDATE exercise
SET time_min = CASE
    WHEN time = '1 min' THEN 1
    WHEN time = '15 min' THEN 15
    WHEN time = '30 min' THEN 30
    ELSE NULL
END;
```

Average pulse by activity type:

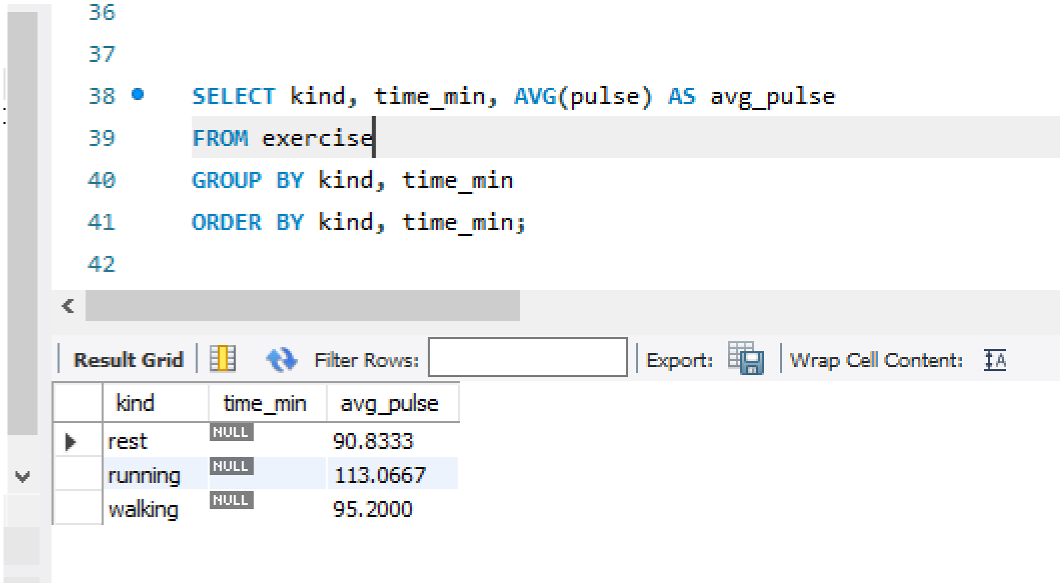


```sql
END;


SELECT kind, AVG(pulse) AS avg_pulse
FROM exercise
GROUP BY kind;
```

```
kind      avg_pulse
rest      90.8333
walking   95.2000
running   113.0667
```

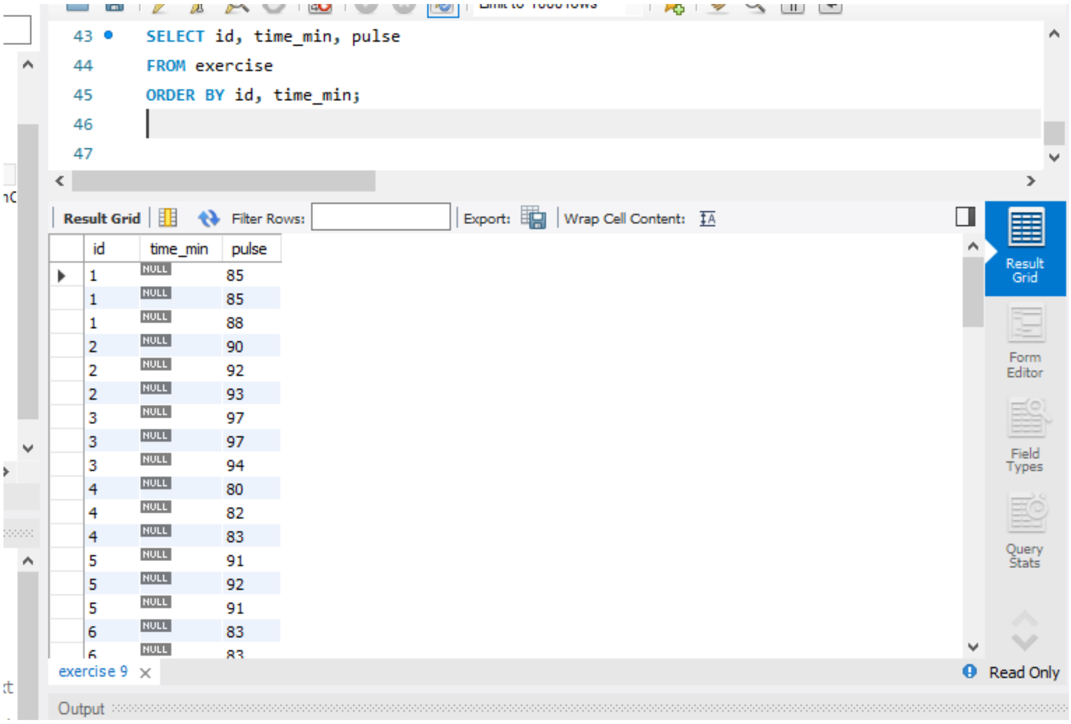
Average pulse by diet:



```sql
SELECT kind, time_min, AVG(pulse) AS avg_pulse
FROM exercise
GROUP BY kind, time_min
ORDER BY kind, time_min;
```

```
kind      time_min  avg_pulse
rest      NULL      90.8333
running   NULL      113.0667
walking   NULL      95.2000
```

. Average pulse by time and kind:



```
SELECT id, time_min, pulse
FROM exercise
ORDER BY id, time_min;
```

id	time_min	pulse
1	NULL	85
1	NULL	85
1	NULL	88
2	NULL	90
2	NULL	92
2	NULL	93
3	NULL	97
3	NULL	97
3	NULL	94
4	NULL	80
4	NULL	82
4	NULL	83
5	NULL	91
5	NULL	92
5	NULL	91
6	NULL	83
6	NULL	83

Conclusion

This project demonstrated how structured query techniques in MySQL can be effectively used to analyze physiological data. By examining pulse rates across different diets, exercise types, and time durations, we uncovered patterns in cardiovascular response. The analysis showed clear trends in pulse elevation based on activity intensity and highlighted subtle differences between "low fat" and "no fat" diets. Through careful data cleaning, normalization, and aggregation, this study provided insights that could support health, fitness, or clinical decision-making. The approach also reinforced the value of SQL as a powerful tool for processing and analyzing structured health data.