



UNIVERSITAS
GADJAH MADA

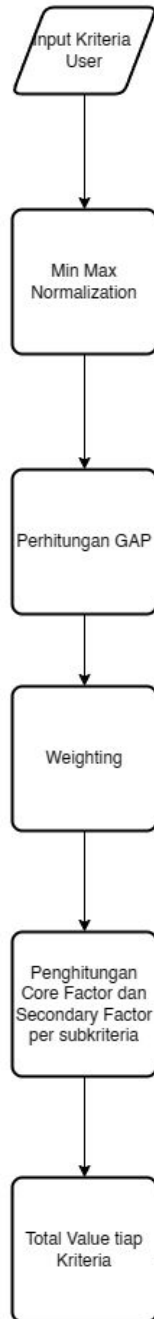
Sistem Pendukung Keputusan Untuk Pemilihan Klub Sepak Bola English Premier League

Anggota Kelompok

- Krisna Bayu Dharma Putra (21/482071/PA/21017)
- Muhammad Irfan (21/474436/PA/20484)
- Andi Nafa Nurfadillah (23/531388/NUGM/01464)
- Meilan Churniati Sonbai (23/531558/NUGM/01577)
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Pendahuluan

Kepopuleran klub sepak bola English Premier League membawa dampak signifikan pada eksistensi dunia sepak bola. Meningkatnya peminat pengikut klub sepak bola membawa masalah baru terutama bagi orang awam. Banyaknya klub sepak bola, seringkali membuat kita sulit menentukan pilihan. Sebagian orang juga tidak memiliki waktu untuk mencari tahu informasi dari faktor faktor penentu yang ada dalam sebuah klub sepak bola.



Profile Matching →
Simplifikasi Kriteria dan
Penghitungan Value

Topsis → Perangkingan

| Criteria | Sub-Criteria |
|------------------|---------------------------|
| Total Fans | Instagram Followers |
| | X Followers |
| | Average viewer |
| History | Number of Trophies Earned |
| | Numbe of Coach Changes |
| Transfer | Club Market Price |
| | Income |
| | Expeditures |
| 2024 Performance | Goal For |
| | Goal Against |
| | Wins |
| | Lose |
| | Draw |

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| Alternatives | Criteria | | | | | | | | | | | | |
|--------------|----------------------------------|---------------|----------------|---------------------------|-------------------------|--|-------------------------------|-------------------------------------|-------------------------------------|--------------|-------|------|------|
| | Total Fans | | | History | | Transfer | | | 2024_Performance (Per 8 March 2024) | | | | |
| | Instagram Followers (in million) | X Followers | Average viewer | Number of Trophies Earned | Number of Coach Changes | Club Market Price (in millions of euros) | Income (in millions of euros) | Expenditures (in millions of euros) | Goal For | Goal Against | Wins | Lose | Draw |
| Alternatif 1 | 44,70 | 24.363.396,00 | 53.348,00 | 63,00 | 21,00 | 868,75 | 1.240,00 | 2.140,00 | 64,00 | 25,00 | 19,00 | 2,00 | 6,00 |
| Alternatif 2 | 51,60 | 17.528.348,00 | 53.282,00 | 36,00 | 49,00 | 1.260,00 | 1.100,00 | 2.840,00 | 62,00 | 27,00 | 20,00 | 3,00 | 5,00 |
| Alternatif 3 | 28,00 | 22.264.172,00 | 60.196,00 | 47,00 | 29,00 | 1.120,00 | 900,92 | 1.930,00 | 68,00 | 23,00 | 19,00 | 4,00 | 4,00 |

| RANKING |
|---------|
| ?? |
| ?? |
| ?? |

Penyelesaian berdasarkan
Metode Kami:

[link spreadsheet](#)

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$$v' = \frac{v - \min_F}{\max_F - \min_F} (\text{new_max}_F - \text{new_min}_F) + \text{new_min}_F$$

| self.standard_value = { | |
|-------------------------|--|
| 0 : 6, | |
| 1 : 5, | |
| -1 : 5, | |
| 2 : 4,5, | |
| -2 : 4,0, | |
| 3 : 3,5, | |
| -3 : 3,0, | |
| 4 : 2, | |
| -4 : 2, | |
| 5 : 1,5, | |
| -5 : 1, | |
| } | |

| | Criteria | | | | | | | | | | | | |
|--------------|----------------------------------|---------------|----------------|---------------------------|-------------------------|--|-------------------------------|-------------------------------------|-------------------------------------|--------------|-------|------|------|
| | Total Fans | | | History | | Transfer | | | 2024 Performance (Per 8 March 2024) | | | | |
| Alternatives | Instagram Followers (in million) | X Followers | Average viewer | Number of Trophies Earned | Number of Coach Changes | Club Market Price (in millions of euros) | Income (in millions of euros) | Expenditures (in millions of euros) | Goal For | Goal Against | Wins | Lose | Draw |
| Alternatif 1 | 44,70 | 24.363.396,00 | 53.348,00 | 63,00 | 21,00 | 868,75 | 1.240,00 | 2.140,00 | 64,00 | 25,00 | 19,00 | 2,00 | 6,00 |
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| Alternatif 3 | 28,00 | 22.264.172,00 | 60.196,00 | 47,00 | 29,00 | 1.120,00 | 900,92 | 1.930,00 | 68,00 | 23,00 | 19,00 | 4,00 | 4,00 |

Mencari Normalisasi Min Max:

| Weights | 5 | 4 | 5 | 5 | 4 | 4 | 4 | 4 | 3 | 5 | 5 | 1 | 1 |
|---------------------|-------------|------------|---------------|-------------|-------------|------------|-------------|-------------|-------------|-----|---|-----|-----|
| Normalisasi Min Max | | | | | | | | | | | | | |
| Alternatif 1 | 3,538135593 | 5 | 0,04772924501 | 5 | 0 | 0 | 5 | 1,153846154 | 1,666666667 | 2,5 | 0 | 0 | 5 |
| Alternatif 2 | 5 | 0 | 0 | 0 | 5 | 5 | 2,935590421 | 5 | 0 | 5 | 5 | 2,5 | 2,5 |
| Alternatif 3 | 0 | 3,46436777 | 5 | 2,037037037 | 1,428571429 | 3,21086262 | 0 | 0 | 5 | 0 | 0 | 5 | 0 |

Mencari GAP kriteria tiap Alternatif:

| GAP | | | | | | | | | | | | | |
|--------------|--------------|---------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|------|----|-----|-----|
| Alternatif 1 | -1,461864407 | 1 | -4,952270755 | 0 | -4 | -4 | 1 | -2,846153846 | -1,333333333 | -2,5 | -5 | -1 | 4 |
| Alternatif 2 | 0 | -4 | -5 | -5 | 1 | 1 | -1,064409579 | 1 | -3 | 0 | 0 | 1,5 | 1,5 |
| Alternatif 3 | -5 | -0,5356322296 | 0 | -2,962962963 | -2,571428571 | -0,7891373802 | -4 | -4 | 2 | -5 | -5 | 4 | -1 |

Menentukan Pembulatan GAP:

| Rounded GAP | | | | | | | | | | | | | |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Alternatif 1 | -1 | 1 | -5 | 0 | -4 | -4 | 1 | -3 | -1 | -3 | -5 | -1 | 4 |
| Alternatif 2 | 0 | -4 | -5 | -5 | 1 | 1 | -1 | 1 | -3 | 0 | 0 | 2 | 2 |
| Alternatif 3 | -5 | -1 | 0 | -3 | -3 | -1 | -4 | -4 | 2 | -5 | -5 | 4 | -1 |

Menentukan Pembobotan dengan Nilai Standar:

| Weighting 'With Standard Value | | | | | | | | | | | | | |
|--------------------------------|---|-----|---|---|-----|-----|-----|-----|-----|---|---|-----|-----|
| Alternatif 1 | 5 | 5,5 | 2 | 6 | 3 | 3 | 5,5 | 4 | 5 | 4 | 2 | 6 | 2,5 |
| Alternatif 2 | 6 | 3 | 2 | 2 | 5,5 | 5,5 | 5 | 5,5 | 4 | 6 | 6 | 4,5 | 4,5 |
| Alternatif 3 | 2 | 6 | 6 | 4 | 4 | 6 | 3 | 3 | 4,5 | 2 | 2 | 2,5 | 6 |

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Benefit

| |
|--------------------------------------|
| Core Total Fans : Average Attendance |
| Transfer : Income, Club Market |
| History : Number of Trophies Earned |
| 2024 Performances : Goal For, Wins |

Mencari *Core Factor*/Faktor Utama:

| CF | Total Fans | History | Transfer | Performance |
|--------------|------------|---------|----------|-------------|
| Alternatif 1 | 2 | 6 | 4,25 | 3,5 |
| Alternatif 2 | 2 | 2 | 5,25 | 5 |
| Alternatif 3 | 6 | 4 | 4,5 | 3,25 |

Mencari *Secondary Factor*/Faktor Pendukung:

| SF | Total Fans | History | Transfer | Performance |
|--------------|------------|---------|----------|-------------|
| Alternatif 1 | 5,25 | 3 | 4 | 4,166666667 |
| Alternatif 2 | 4,5 | 5,5 | 5,5 | 5 |
| Alternatif 3 | 4 | 4 | 3 | 3,5 |

Diperoleh *Final Value*:

| Final Value | Total Fans | History | Transfer | Performance |
|--------------|------------|---------|----------|-------------|
| Alternatif 1 | 3,3 | 4,8 | 4,15 | 3,766666667 |
| Alternatif 2 | 3 | 3,4 | 5,35 | 5 |
| Alternatif 3 | 5,2 | 4 | 3,9 | 3,35 |

CF = 0.6

SF = 0.4

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Dengan menggunakan Metode Topsis, diperoleh matriks perkalian berikut:

| Squared_matrix | | | | |
|----------------|-------|-------|-------|-------------|
| Alternatif 1 | 26,01 | 19,36 | 32,49 | 10,67111111 |
| Alternatif 2 | 27,04 | 19,36 | 32,49 | 24,01 |
| Alternatif 3 | 3,24 | 9 | 25 | 7,746944444 |

Didapatkan:

| Total Fans | History | Transfer | Performance |
|-------------|-------------|-------------|-------------|
| 5,502726597 | 5,325410782 | 7,582216035 | 6,513682181 |

| Normalized | Total Fans | History | Transfer | Performance |
|--------------|--------------|--------------|--------------|--------------|
| Alternatif 1 | 0,6797583511 | 0,6369457718 | 0,6008995258 | 0,5015084519 |
| Alternatif 2 | 0,6930869462 | 0,6369457718 | 0,6008995258 | 0,7522626778 |
| Alternatif 3 | 0,2399147122 | 0,434281208 | 0,5271048472 | 0,4273056707 |
| weighting | 0,3 | 0,3 | 0,3 | 0,1 |

| Normalized | Total Fans | History | Transfer | Performance |
|--------------|---------------|--------------|--------------|---------------|
| Alternatif 1 | 0,2039275053 | 0,1910837315 | 0,1802698577 | 0,05015084519 |
| Alternatif 2 | 0,2079260839 | 0,1910837315 | 0,1802698577 | 0,07522626778 |
| Alternatif 3 | 0,07197411365 | 0,1302843624 | 0,1581314544 | 0,04273056707 |

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Mencari Ideal Positif dan Ideal Negatif:

| Ideal positif | | | |
|---------------|--------------|--------------|---------------|
| Total Fans | History | Transfer | Performance |
| 0,2079260839 | 0,1910837315 | 0,1802698577 | 0,07522626778 |

| Ideal negatif | | | |
|---------------|--------------|--------------|---------------|
| Total Fans | History | Transfer | Performance |
| 0,07197441365 | 0,1302843624 | 0,1581314541 | 0,04273056707 |

Diperoleh:

| D+ | Total Fans | History | Transfer | Performance |
|--------------|------------------|----------------|-----------------|-----------------|
| Alternatif 1 | 0,00001598863031 | 0 | 0 | 0,0006287768183 |
| Alternatif 2 | 0 | 0 | 0 | 0 |
| Alternatif 3 | 0,01848285664 | 0,003696563286 | 0,0004901089131 | 0,001055970565 |

| D- | Total Fans | History | Transfer | Performance |
|--------------|---------------|----------------|-----------------|-----------------|
| Alternatif 1 | 0,0174116184 | 0,003696563286 | 0,0004901089131 | 0,0000550605273 |
| Alternatif 2 | 0,01848285664 | 0,003696563286 | 0,0004901089131 | 0,001055970565 |
| Alternatif 3 | 0 | 0 | 0 | 0 |

Contoh Kasus

Diperoleh Solusi Ideal Positif dan Ideal Negatif:

| D+ | |
|--------------|----------------|
| Alternatif 1 | 0,003998578536 |
| Alternatif 2 | 0 |
| Alternatif 3 | 0,1359516702 |

| D- | |
|--------------|--------------|
| Alternatif 1 | 0,1319530917 |
| Alternatif 2 | 0,1359516702 |
| Alternatif 3 | 0 |

Dengan Nilai Vscore:

| VSCORE | |
|--------------|--------------|
| Alternatif 1 | 0,9705882353 |
| Alternatif 2 | 1 |
| Alternatif 3 | 0 |

Urutan Ranking yang didapatkan yaitu:

| RANKING |
|--------------|
| Alternatif 2 |
| Alternatif 1 |
| Alternatif 3 |

Contoh Aplikasi

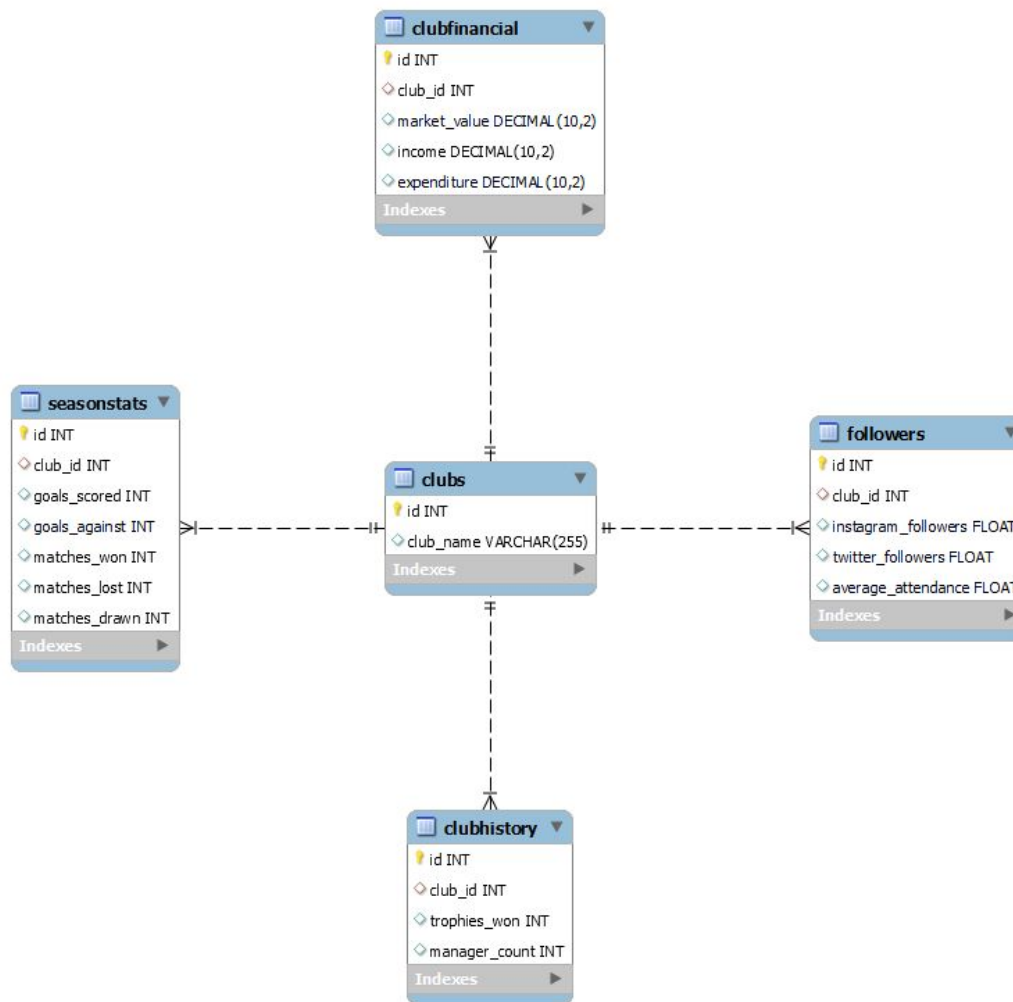
Suatu kelompok mahasiswa di UGM, akan membuat suatu sistem untuk pemilihan Klub Sepak Bola English Premier League. Adapun jumlah Alternatif Klub Sepak Bola yaitu sebanyak 20 klub dengan beberapa kriteria yang digunakan sebagai bahan pertimbangan untuk mengambil keputusan, yaitu:



Contoh Aplikasi

| Criteria | Sub-Criteria |
|------------------|---------------------------|
| Total Fans | Instagram Followers |
| | X Followers |
| | Average viewer |
| History | Number of Trophies Earned |
| | Numbe of Coach Changes |
| Transfer | Club Market Price |
| | Income |
| | Expenditures |
| 2024 Performance | Goal For |
| | Goal Against |
| | Wins |
| | Lose |
| | Draw |

Database



[spreadsheet](#)
[pengembangan](#)

INTERFACE – INSERT



UNIVERSITAS GADJAH MADA

Modify Data

Choose operation

Insert

INSERT INTO DATABASE

Team Name

Market Value

 - +

Income

 - +

Expenditure

 - +

Instagram Followers

 - +

Twitter Followers

 - +

Average Attendance

 - +

Trophies Won

 - +

Manager Count

 - +

Goals Against

 - +

Goals Scored

 - +

Matches Won

 - +

Matches Lost

 - +

Matches Drawn

 - +

Add Data

DELETE



UNIVERSITAS GADJAH MADA

Modify Data

Choose operation

Delete ▼

DELETE DATABASE

Team You Want to Delete

Liverpool ▼

Delete Data



Modify Data

Choose operation

Update

UPDATE DATABASE

Team You Want to Change Name

Liverpool

New Name

Market Value

0.00 - +

Income

0.00 - +

Expenditure

0.00 - +

Instagram Followers

0.00 - +

Twitter Followers

0.00 - +

Average Attendance

0.00 - +

Trophies Won

0.00 - +

Manager Count

0.00 - +

Goals Against

0.00 - +

Goals Scored

0.00 - +

Matches Won

0.00 - +

Matches Lost

0.00 - +

Matches Drawn

0.00 - +

Update Data

Generate Dataset



UNIVERSITAS GADJAH MADA

Modify Data

choose operation

Generate Dataset

| | club_id | club_name | market_value | income | expenditure | instagram_followers | twitter_f |
|---|---------|-------------------------|--------------|--------|-------------|---------------------|-----------|
| 0 | 1 | Liverpool | 868.75 | 1,240 | 2,140 | 44.7 | 24 |
| 1 | 2 | Manchester City | 1,260 | 1,100 | 2,840 | 51.6 | 17 |
| 2 | 3 | Arsenal | 1,120 | 900.92 | 1,930 | 28.8 | 22 |
| 3 | 4 | Aston Villa | 623.05 | 637.41 | 1,260 | 3.8 | 2 |
| 4 | 5 | Tottenham | 761.3 | 120.7 | 2,000 | 16.9 | 8 |
| 5 | 6 | Manchester United | 735.25 | 891.58 | 2,610 | 63.3 | 37 |
| 6 | 7 | West Ham United | 440.6 | 789.66 | 1,290 | 4.4 | 2 |
| 7 | 8 | Newcastle United | 638.7 | 717.27 | 1,470 | 2.7 | 2 |
| 8 | 9 | Brighton & Hove Albion | 487.1 | 491.87 | 556.91 | 2.1 | 1 |
| 9 | 10 | Wolverhampton Wanderers | 302.7 | 517.4 | 861.3 | 2.8 | 1 |

Suggest Club



UNIVERSITAS GADJAH MADA

Modify Data

Choose operation

Suggest Club

CLUB SUGGESTION GENERATOR

Market Value

6

- +

Income

6

- +

Expenditure

5

- +

Instagram Followers

1

- +

Twitter Followers

5

- +

Average Attendance

5

- +

Trophies Won

1

- +

Manager Count

1

- +

Goals Against

1

- +

Goals Scored

1

- +

Matches Won

1

- +

Matches Lost

1

- +

Matches Drawn

1

- +

Profile Topsis

Profile Matching

CODE DEMO



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Terima Kasih

Kelompok 1 Big Project SPK