

LAMPIRAN

Lampiran 1 Surat Keterangan Penelitian

SURAT KETERANGAN TELAH MELAKUKAN PENELITIAN

Yang bertanda tangan di bawah ini :

Nama : HERY MASYHUR
Jabatan : OWNER PLANET PHONE

Dengan ini menyatakan bahwa mahasiswa yang beridentitas :

Nama : Wahyu Nur Cahyo
NIM : 211103002
Program Studi : SI Teknik Informatika

Telah selesai melakukan penelitian dan pengambilan data penelitian di Toko Planet Phone yang beralamatkan Jl. Raya Sugihwaras No. 54, Slawung, Sugihwaras, Kec. Sugihwaras, Kab. Bojonegoro. Pada tanggal 05 Mei 2024 dalam rangka penyusunan skripsi yang berjudul "**Implementasi Metode Simple Multy-Attribute Rating Technique (SMART) dalam Rekomendasi Pembelian Smartphone**"

Demikian surat keterangan ini dibuat dan diberikan kepada yang bersangkutan untuk dipergunakan sepenuhnya.

Bojonegoro, 07 Mei 2024

Yang bersangkutan


HERY MASYHUR
Alamat : Utara Pasar Sugihwaras
Telp : 082337149374

Lampiran 2 Tabel Uji *Black-Box***Pengujian Aplikasi Metode *Black-Box***

Yang bertanda tangan dibawah ini :

Nama : IFNU WISMA DWI PRASTFA

Profesi : DOSEN TEKNIK INFORMATIKA

Telah melakukan pengujian *black-box* pada skripsi :


Nama : Wahyu Nur Cahyo

NIM : 211103002

Judul : Implementasi Metode *Simple Multy-Attribute Rating Technique* (SMART)
dalam Rekomendasi Pembelian *Smartphone*

Demikian surat ini dibuat dengan sebenar-benarnya agar dapat digunakan
sebagaimana mestinya.

Bojonegoro, 02 Juli 2024


(IFNU WISMA DWI P.)

UNUGIRI

A. Petunjuk Ujian

- Gunakan dan operasikan aplikasi terlebih dahulu
- Berikan tanda (✓) pada penilaian sesuai dengan jawaban yang dipilih.

B. Instrumen Uji *Black-Box*

No	Halaman yang diuji	Kasus Uji	Skenario Uji	Hasil yang diinginkan	Hasil	
					Valid	Tidak
1	Beranda Umum	Halaman beranda umum	Masuk kedalam halaman beranda umum	Menampilkan halaman beranda umum	✓	
		Tombol pada beranda umum	Menekan tombol - tombol yang berada di dashboard umum	Menampilkan halaman/hasil sesuai penjelasan sebelumnya	✓	
		Data yang ditampilkan	Melihat keseluruhan data yang ditampilkan pada halaman tersebut	data yang ditampilkan sesuai dengan keterangan yang ada	✓	
2	Rekomendasi	Halaman rekomendasi	Masuk kedalam halaman rekomendasi	Melihat halaman rekomendasi smartphone	✓	
		Form penentuan bobot kriteria	Melihat, mengisi, mengirimkan data <i>form</i> pada halaman rekomendasi <i>smartphone</i>	Sistem dapat memproses data yang dimasukan, serta menampilkan halaman hasil perhitungan	✓	
		Halaman hasil perhitungan	Setelah mengisi <i>form</i> bobot kriteria maka akan diarahkan ke halaman hasil perhitungan	Sistem menampilkan hasil perhitungan rekomendasi <i>smartphone</i>	✓	
		Tombol-tombol fitur pada halaman hasil perhitungan	Menekan tombol-tombol pada halaman hasil perhitungan	Tombol-tombol pada halaman hasil perhitungan berfungsi sepenuhnya	✓	

No	Halaman yang diuji	Kasus Uji	Skenario Uji	Hasil yang diinginkan	Hasil	
					Valid	Tidak
3	Smartphone	Halaman smarphone	Membuka halaman data <i>smartphone</i>	Menampilkan data <i>smartphone</i>	✓	
		Data dan fitur pada haaman <i>smartphone</i>	Melihat dan menekan tombol/fitur pada halaman <i>smartphone</i>	Menampilkan data sesuai dengan keterangan yang ada	✓	
4	Toko	Halaman Toko	Membuka halaman toko	Menampilkan halaman toko	✓	
		Detail Toko	Membuka halaman detail toko	Sistem menampilkan data detail toko	✓	
5	Pencarian	Form pencarian	Mengisi form pencarian yang ada pada sistem	Menampilkan hasil pencarian sesuai data yang dimasukan	✓	
		Halaman hasil pencarian	Melihat halaman hasil pencarian	Menampilkan halaman hasil pencarian yang relevan	✓	
		Fitur dan data dalam halaman hasil pencarian	Melihat dan mencoba fitur yang ada pada halaman tersebut	Menampilkan sesuai dengan keterangan pada fitur dan data tersebut	✓	
6	<i>Login</i>	Halaman <i>login</i>	Membuka halaman <i>login</i>	Menampilkan halaman <i>form login</i>	✓	

UNUGIRI

No	Halaman yang diuji	Kasus Uji	Skenario Uji	Hasil yang diinginkan	Hasil	
					Valid	Tidak
		Form login	Mengisi <i>username password</i> dan mengirimkan data <i>form login</i>	Sistem dapat melakukan validasi akun, jika benar akan membuat sesi <i>login</i> admin, jika tidak akan menampilkan notifikasi <i>username</i> atau <i>password</i> salah	✓	
7	Beranda admin	Halaman beranda admin	Menampilkan halaman beranda admin	Setelah login tervalidasi sistem dapat menampilkan halaman beranda admin	✓	
		Data dan fitur halaman beranda admin	Melihat dan mengecek fitur dan data beranda admin	Fitur dan data telah sesuai dengan keterangan yang ada	✓	
8	Master data	Halaman master data <i>smartphone</i>	Menampilkan data yang sesuai dengan keterangan yang ada	Data yang ditampilkan pada halaman tersebut	✓	
		Data yang ditampilkan	Membuka halaman master data <i>smartphone</i>	Data pada halaman tersebut telah sesuai dengan keterangan yang ada	✓	
		Fitur tambah data	Melihat dan mengisi data <i>smartphone</i> yang baru pada halaman tambah data <i>smartphone</i>	Data yang telah di masukan tersimpan pada database sistem	✓	

No	Halaman yang diuji	Kasus Uji	Skenario Uji	Hasil yang diinginkan	Hasil	
					Valid	Tidak
		Fitur edit data	Merubah data yang ditampilkan pada halaman edit data <i>smartphone</i>	Data yang telah diubah tersimpan pada <i>database</i>	✓	
		Fitur hapus data	Menekan hapus data salah satu <i>smartphone</i>	Data yang di hapus akan hilang dari <i>database</i>	✓	
9	Bobot kriteria	Halaman bobot kriteria	Membuka halaman bobot kriteria	Menampilkan halaman bobot kriteria	✓	
		Halaman opsi suatu bobot kriteria	Membuka halaman opsi suatu bobot kriteria	Menampilkan form bobot kriteria sesuai opsi sebelumnya	✓	
		Form opsi suatu bobot kriteria	Mengubah / mengisi <i>form</i> yang ada	Data yang dimasukan tersimpan pada <i>database</i>	✓	
10	Data Toko	Halaman data toko	Membuka halaman data toko	Menampilkan data toko	✓	
		Tambah Toko	Mengisi <i>form</i> tambah toko	Data toko yang ditambahkan disimpan dalam <i>database</i>	✓	
11	Profil admin	Halaman profil dan akun admin	Membuka halaman profil dan akun admin	Menampilkan halaman profil admin	✓	

No	Halaman yang diuji	Kasus Uji	Skenario Uji	Hasil yang diinginkan	Hasil	
					Valid	Tidak
		Form ubah profil/akun admin	Menekan tombol ubah pada profil/akun admin	Menampilkan form ubah profil/akun admin	✓	
12	Logout	Tombol logout	Menekan tombol <i>logout</i>	Keluar dari sistem admin, lalu menampilkan halaman beranda umum	✓	

Saran dan Tambahan :

...SYSTEM SUDAH BAIK DAN RESPONSIF...



Lampiran 3 Angket Uji Kelayakan

Nilai angket uji kelayakan :

No	Nama	Profesi	Nilai Pertanyaan				
			1	2	3	4	5
1	Agus Bima Saputra	Mahasiswa	95	90	85	96	88
2	Adi Sukmana	Mahasiswa	94	87	95	97	99
3	Ana Syayidati nuriyah	Mahasiswa	98	97	98	99	97
4	Amaliya Ariani	Mahasiswa	97	99	97	98	99
5	Bima Nurjunianto	Mahasiswa	99,9	89,9	90	95	93
6	M. Ilham Jaya Kusuma	Mahasiswa	100	100	90	90	90
7	Ahmad Thoirun Niam	Mahasiswa	100	100	90	90	95
8	Ulfi Ifrani	Mahasiswa	95	100	90	95	95
9	Umi Azizah	Mahasiswa	95	95	80	85	90
10	Ahmad Khozainul Munajat	Mahasiswa	85	90	80	90	85
Rata-Rata			95,89	94,79	89,50	93,50	93,10
Total			958,9	947,9	895	935	931

Persentase angket uji kelayakan :

No	Pertanyaan	Persentase
1	Desain Antarmuka Pengguna (UI) menarik dan mudah dipahami	96%
2	Pengalaman Pengguna (UX) yang nyaman, menyenangkan, dan efisien	95%
3	Responsif terhadap berbagai perangkat dan ukuran layar.	90%
4	Waktu memuat dan pemrosesan data yang cepat.	94%
5	Dalam memproses rekomendasi <i>smartphone</i> menggunakan metode SMART sistem dapat menampilkan rekomendasi sesuai kriteria yang dimasukan.	93%
Rata-Rata		93%

Lampiran 4 Data *Smartphone*

No	Smartphone		Body			Display			System			Memory		Main Camera				Front Camera		Battery		Price
	Brand	Merk	Dimensio n	W eig ht	build	Type	Size	Resol ution	OS	Chipset	CPU	R A M	R O M	Ca me ra	Typ e	Video	Ca mer a	Video	USB	Cap acity		
1	ASUS	Zenfone 10	146.5 x 68.1 x 9.4 mm	172 g	aluminum frame, plastic back	SUPER AMOLED	84.6 cm²	1080 x 2400	Android 13	Snapdragon 8 Gen 2	Octa-core	8	128	50 MP	DUAL	8K 24FPS, 4K 30/60FPS	32 MP	1080p 30FPS	USB Type-C 2.0	4300	Rp 8.999.000,00	
2	ASUS	Zenfone 10	146.5 x 68.1 x 9.4 mm	172 g	aluminum frame, plastic back	SUPER AMOLED	84.6 cm²	1080 x 2400	Android 13	Snapdragon 8 Gen 2	Octa-core	16	512	50 MP	DUAL	8K 24FPS, 4K 30/60FPS	32 MP	1080p 30FPS	USB Type-C 2.0	4300	Rp 11.999.000,00	
3	ASUS	ROG Phone 7 Ultimate	173 x 77 x 10.3 mm	239 g	aluminum frame, Glass back	AMOLED	109.5 cm²	1080 x 2448	Android 13	Snapdragon 8 Gen 2	Octa-core	16	512	50 MP	TRIPLE	8K 24fps, 4K 30/60fps, 1080p 30/60/120/240fps	32 MP	1080p 30fps	USB Type-C 3.1	6000	Rp 23.499.000,00	
4	ASUS	ROG Phone 7	173 x 77 x 10.3 mm	239 g	aluminum frame, Glass back	AMOLED	109.5 cm²	1080 x 2448	Android 13	Snapdragon 8 Gen 2	Octa-core	16	256	50 MP	TRIPLE	8K 24fps, 4K 30/60fps, 1080p 30/60/120/240fps	32 MP	1080p 30fps	USB Type-C 3.1	6000	Rp 13.499.000,00	
5	ASUS	ROG Phone 7	173 x 77 x 10.3 mm	239 g	aluminum frame, Glass back	AMOLED	109.5 cm²	1080 x 2448	Android 13	Snapdragon 8 Gen 2	Octa-core	16	512	50 MP	TRIPLE	8K 24fps, 4K 30/60fps, 1080p 30/60/120/240fps	32 MP	1080p 30fps	USB Type-C 3.1	6000	Rp 26.990.000,00	
6	APPL E	Iphone 15 Pro Max	159.9 x 76.7 x 8.3 mm	221 g	titanium frame, Glass back	Super Retina XDR OLED	110.2 cm²	1290 x 2796	iOS 17	Apple A17 Pro	Hexa-core	8	256	48 MP	TRIPLE	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120/240fps	USB Type-C 3.2 Gen 2	4441	Rp 22.999.000,00	
7	APPL E	Iphone 15 Pro Max	159.9 x 76.7 x 8.3 mm	221 g	titanium frame, Glass back	Super Retina XDR OLED	110.2 cm²	1290 x 2796	iOS 17	Apple A17 Pro	Hexa-core	8	512	48 MP	TRIPLE	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120/240fps	USB Type-C 3.2 Gen 2	4441	Rp 27.999.000,00	
8	APPL E	Iphone 15 Pro Max	159.9 x 76.7 x 8.3 mm	221 g	titanium frame, Glass back	Super Retina XDR OLED	110.2 cm²	1290 x 2796	iOS 17	Apple A17 Pro	Hexa-core	8	1000	48 MP	TRIPLE	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120/240fps	USB Type-C 3.2 Gen 2	4441	Rp 31.999.000,00	
9	APPL E	Iphone 15 Pro	146.6 x 70.6 x 8.3 mm	187 g	titanium frame, Glass back	Super Retina XDR OLED	91.3 cm²	1179 x 2556	iOS 17	Apple A17 Pro	Hexa-core	8	128	48 MP	TRIPLE	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120/240fps	USB Type-C 3.2 Gen 2	3274	Rp 18.999.000,00	
10	APPL E	Iphone 15 Pro	146.6 x 70.6 x 8.3 mm	187 g	titanium frame, Glass back	Super Retina XDR OLED	91.3 cm²	1179 x 2556	iOS 17	Apple A17 Pro	Hexa-core	8	256	48 MP	TRIPLE	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120/240fps	USB Type-C 3.2 Gen 2	3274	Rp 21.999.000,00	
11	APPL E	Iphone 15 Pro	146.6 x 70.6 x 8.3 mm	187 g	titanium frame, Glass back	Super Retina XDR OLED	91.3 cm²	1179 x 2556	iOS 17	Apple A17 Pro	Hexa-core	8	512	48 MP	TRIPLE	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120/240fps	USB Type-C 3.2 Gen 2	3274	Rp 25.999.000,00	
12	APPL E	Iphone 15 Pro	146.6 x 70.6 x 8.3 mm	187 g	titanium frame, Glass back	Super Retina XDR OLED	91.3 cm²	1179 x 2556	iOS 17	Apple A17 Pro	Hexa-core	8	1000	48 MP	TRIPLE	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120/240fps	USB Type-C 3.2 Gen 2	3274	Rp 29.999.000,00	
13	APPL E	Iphone 15 Plus	160.9 x 77.8 x 7.8 mm	201 g	aluminum frame, Glass back	Super Retina XDR OLED	110.2 cm²	1290 x 2796	iOS 17	Apple A16 Bionic	Hexa-core	8	128	48 MP	DUAL	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120fps	USB Type-C 2.0	4382	Rp 15.999.000,00	
14	APPL E	Iphone 15 Plus	160.9 x 77.8 x 7.8 mm	201 g	aluminum frame, Glass back	Super Retina XDR OLED	110.2 cm²	1290 x 2796	iOS 17	Apple A16 Bionic	Hexa-core	8	256	48 MP	DUAL	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120fps	USB Type-C 2.0	4382	Rp 18.999.000,00	
15	APPL E	Iphone 15 Plus	160.9 x 77.8 x 7.8 mm	201 g	titanium frame, Glass back	Super Retina XDR OLED	110.2 cm²	1290 x 2796	iOS 17	Apple A16 Bionic	Hexa-core	8	512	48 MP	DUAL	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120fps	USB Type-C 2.0	4382	Rp 22.999.000,00	
16	APPL E	Iphone 15	147.6 x 71.6 x 7.8 mm	171 g	aluminum frame, Glass back	Super Retina XDR OLED	91.3 cm²	1179 x 2556	iOS 17	Apple A16 Bionic	Hexa-core	8	128	48 MP	DUAL	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120fps	USB Type-C 2.0	3349	Rp 15.999.000,00	

17	APPL E	Iphone 15	147.6 x 71.6 x 7.8 mm	171 g	aluminum frame, Glass back	Super Retina XDR OLED	91.3 cm ²	1179 x 2556	iOS 17	Apple A16 Bionic	Hexa-core	8	256	48 MP	DU AL	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120fps	USB Type-C 2.0	3349	Rp 18.999.000,00
18	APPL E	Iphone 15	147.6 x 71.6 x 7.8 mm	171 g	aluminum frame, Glass back	Super Retina XDR OLED	91.3 cm ²	1179 x 2556	iOS 17	Apple A16 Bionic	Hexa-core	8	512	48 MP	DU AL	4K 24/25/30/60fps, 1080p 30/60/120/240fps	12 MP	4K 24/25/30/60fps, 1080p 30/60/120fps	USB Type-C 2.0	3349	Rp 22.999.000,00
19	SAMS UNG	Galaxy S24	147 x 70.6 x 7.6 mm	167 g	titanium frame, Glass back	Dynamic LTPO AMOLED	94.4 cm ²	1080 x 2340	Android 14	Snapdragon 8 Gen 3	Octa-core	8	512	50 MP	TRI PLE	8K 24fps, 4K 30/60fps, 1080p 30/60/120/240fps	12 MP	4K 30/60fps, 1080p 30fps	USB Type-C 3.2 Gen 2	4000	Rp 15.999.000,00
20	SAMS UNG	Galaxy S24 Ultra	162.3 x 79 x 8.6 mm	232 g	titanium frame, Glass back	Dynamic LTPO AMOLED	113.5 cm ²	1440 x 3120	Android 14	Snapdragon 8 Gen 3	Octa-core	12	512	200 MP	QU AD	8K 24/30fps, 4K 30/60/120fps, 1080p 30/60/240fps	12 MP	4K 30/60fps, 1080p 30fps	USB Type-C 3.2 Gen 2	5000	Rp 23.999.000,00
21	SAMS UNG	Galaxy S24 Ultra	162.3 x 79 x 8.6 mm	232 g	titanium frame, Glass back	Dynamic LTPO AMOLED	113.5 cm ²	1440 x 3120	Android 14	Snapdragon 8 Gen 3	Octa-core	12	1000	200 MP	QU AD	8K 24/30fps, 4K 30/60/120fps, 1080p 30/60/240fps	12 MP	4K 30/60fps, 1080p 30fps	USB Type-C 3.2 Gen 2	5000	Rp 27.999.000,00
22	SAMS UNG	Galaxy S24+(Online Exclusive)	158.5 x 75.9 x 7.7 mm	196 g	aluminum frame, Glass back	Dynamic LTPO AMOLED	110.2 cm ²	1440 x 3120	Android 14	Snapdragon 8 Gen 3	Deca-core	12	512	50 MP	TRI PLE	8K 24/30fps, 4K 30/60fps, 1080p 30/60/240fps	12 MP	4K 30/60fps, 1080p 30fps	USB Type-C 3.2 Gen 2	4900	Rp 18.999.000,00
23	SAMS UNG	Galaxy S24 Ultra	162.3 x 79 x 8.6 mm	232 g	titanium frame, Glass back	Dynamic LTPO AMOLED	113.5 cm ²	1440 x 3120	Android 14	Snapdragon 8 Gen 3	Octa-core	12	256	200 MP	QU AD	8K 24/30fps, 4K 30/60/120fps, 1080p 30/60/240fps	12 MP	4K 30/60fps, 1080p 30fps	USB Type-C 3.2 Gen 2	5000	Rp 21.499.000,00
24	SAMS UNG	Galaxy S23 FE	158 x 76.5 x 8.2 mm	209 g	aluminum frame, Glass back	Dynamic AMOLED	100.5 cm ²	1080 x 2340	Android 13	Exynos 2200	Octa-core	8	256	50 MP	TRI PLE	8K 24fps, 4K 30/60fps, 1080p 30/60/120/240fps	10 MP	4K 30/60fps, 1080p 30/60fps	USB Type-C 3.2 Gen 1	4500	Rp 9.999.000,00
25	SAMS UNG	Galaxy S23 FE	158 x 76.5 x 8.2 mm	209 g	aluminum frame, Glass back	Dynamic AMOLED	100.5 cm ²	1080 x 2340	Android 13	Exynos 2200	Octa-core	8	128	50 MP	TRI PLE	8K 24fps, 4K 30/60fps, 1080p 30/60/120/240fps	10 MP	4K 30/60fps, 1080p 30/60fps	USB Type-C 3.2 Gen 1	4500	Rp 8.999.000,00
26	SAMS UNG	Galaxy S23 Ultra	163.4 x 78.1 x 8.9 mm	234 g	aluminum frame, Glass back	Dynamic AMOLED	114.7 cm ²	1440 x 3088	Android 13	Snapdragon 8 Gen 2	Octa-core	12	512	200 MP	QU AD	8K 24/30fps, 4K 30/60fps, 1080p 30/60/240fps, 1080p 960fps	12 MP	4K 30/60fps, 1080p 30fps	USB Type-C 3.2 Gen 1	5000	Rp 19.999.000,00
27	SAMS UNG	Galaxy S23+	157.8 x 76.2 x 7.6 mm	196 g	aluminum frame, Glass back	Dynamic AMOLED	105.3 cm ²	1080 x 2340	Android 13	Snapdragon 8 Gen 2	Octa-core	8	256	50 MP	TRI PLE	8K 24/30fps, 4K 30/60fps, 1080p 30/60/240fps, 1080p 960fps	12 MP	4K 30/60fps, 1080p 30fps	USB Type-C 3.2 Gen 1	4700	Rp 15.999.000,00
28	SAMS UNG	Galaxy S23	146.3 x 70.9 x 7.6 mm	168 g	aluminum frame, Glass back	Dynamic AMOLED	90.1 cm ²	1080 x 2340	Android 13	Snapdragon 8 Gen 2	Octa-core	8	256	50 MP	TRI PLE	8K 24/30fps, 4K 30/60fps, 1080p 30/60/240fps, 1080p 960fps	12 MP	4K 30/60fps, 1080p 30fps	USB Type-C 3.2 Gen 1	3900	Rp 13.999.000,00
29	SAMS UNG	Galaxy Z Flip5	165.1 x 71.9 x 6.9 mm	187 g	glass back, aluminum frame	Dynamic AMOLED	102.0 cm ²	1080 x 2640	Android 13	Snapdragon 8 Gen 2	Octa-core	8	256	12 MP	DU AL	4K 30/60fps, 1080p 60/240fps, 720p 960fps	10 MP	4K 30fps	USB Type-C 3.2	3700	Rp 14.999.000,00
30	SAMS UNG	Galaxy Z Flip5	165.1 x 71.9 x 6.9 mm	187 g	glass back, aluminum frame	Dynamic AMOLED	102.0 cm ²	1080 x 2640	Android 13	Snapdragon 8 Gen 2	Octa-core	8	512	12 MP	DU AL	4K 30/60fps, 1080p 60/240fps, 720p 960fps	10 MP	4K 30fps	USB Type-C 3.2	3700	Rp 16.499.000,00
31	SAMS UNG	Galaxy Z Fold5	154.9 x 129.9 x 6.1 mm	253 g	glass back, aluminum frame	Dynamic AMOLED	183.2 cm ²	1812 x 2176	Android 13	Snapdragon 8 Gen 2	Octa-core	12	256	50 MP	TRI PLE	8K 30fps, 4K 60fps, 1080p 60/240fps, 720p 960fps	4 MP	4K 30/60fps, 1080p 30/60fps	USB Type-C 3.2	4400	Rp 23.499.000,00
32	SAMS UNG	Galaxy Z Fold5	154.9 x 129.9 x 6.1 mm	253 g	glass back, aluminum frame	Dynamic AMOLED	183.2 cm ²	1812 x 2176	Android 13	Snapdragon 8 Gen 2	Octa-core	12	512	50 MP	TRI PLE	8K 30fps, 4K 60fps, 1080p 60/240fps, 720p 960fps	4 MP	4K 30/60fps, 1080p 30/60fps	USB Type-C 3.2	4400	Rp 24.999.000,00
33	SAMS UNG	Galaxy A05S	168 x 77.8 x 8.8 mm	194 g	plastic back, plastic frame	PLS LCD	108.4 cm ²	1080 x 2400	Android 13	Snapdragon 680 4G	Octa-core	6	128	50 MP	TRI PLE	1080p 30/60fps	13 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.199.000,00
34	SAMS UNG	Galaxy A15 5G	160.1 x 76.8 x 8.4 mm	200 g	plastic back, plastic frame	Super AMOLED	103.7 cm ²	1080 x 2340	Android 14	Mediatek Dimensity 6100+	Octa-core	8	256	50 MP	TRI PLE	1080p 30fps	13 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 3.599.000,00

35	SAMSUNG	Galaxy A25 5G	161 x 76.5 x 8.3 mm	197 g	plastic back, plastic frame	Super AMOLED	103.7 cm ²	1080 x 2340	Android 14	Exynos 1280	Octa-core	8	128	50 MP	TRIPLE	4K 30fps, 1080p 30fps	13 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 3.999.000,00
36	SAMSUNG	Galaxy A15	160.1 x 76.8 x 8.4 mm	200 g	plastic back, plastic frame	Super AMOLED	103.7 cm ²	1080 x 2340	Android 14	Mediatek Helio G99	Octa-core	8	256	50 MP	TRIPLE	1080p 30fps	13 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.999.000,00
37	SAMSUNG	Galaxy A05	168.8 x 78.2 x 8.8 mm	195 g	plastic back, plastic frame	PLS LCD	108.4 cm ²	720 x 1600	Android 13	Helio G85	Octa-core	4	128	50 MP	DUAL	1080p 30/60fps	8 MP		USB Type-C 2.0	5000	Rp 1.599.000,00
38	SAMSUNG	Galaxy A05	168.8 x 78.2 x 8.8 mm	195 g	plastic back, plastic frame	PLS LCD	108.4 cm ²	720 x 1600	Android 13	Helio G85	Octa-core	6	128	50 MP	DUAL	1080p 30/60fps	8 MP		USB Type-C 2.0	5000	Rp 1.899.000,00
39	SAMSUNG	Galaxy M54 5G	164.9 x 77.3 x 8.4 mm	199 g	plastic back, plastic frame	Super AMOLED	108.4 cm ²	1080 x 2400	Android 13	Exynos 1380	Octa-core	8	256	108 MP	TRIPLE	4K 30fps, 1080p 30/60fps	32 MP	4K 30fps, 1080p 30fps	USB Type-C 2.0	6000	Rp 6.499.000,00
40	XIAOMI	Xiaomi 14	152.8 x 71.5 x 8.2 mm	188 g	glass back, aluminum frame	LTPO OLED	97.6 cm ²	1200 x 2670	Android 14	Snapdragon 8 Gen 3	Octa-core	12	256	50 MP	TRIPLE	8K 24fps, 4K 24/30/60fps, 1080p 30/60/120/240/960fps, 720p 1920fps	32 MP	4K 30/60fps, 1080p 30/60fps	USB Type-C 3.2	4610	Rp 11.999.000,00
41	XIAOMI	Xiaomi 13T	162.2 x 75.7 x 8.5 mm	193 g	glass back, plastic frame	AMOLED	107.4 cm ²	1220 x 2712	Android 13	Mediatek Dimensity 8200 Ultra	Octa-core	12	256	50 MP	TRIPLE	4K 30fps, 1080p 30/60/120fps	20 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 6.499.000,00
42	REDMI	Redmi A3	168.3 x 76.3 x 8.3 mm	193 g	glass back, plastic frame	IPS	106.5 cm ²	720 x 1650	Android 14	Mediatek Helio G36	Octa-core	4	128	8 MP	SINGLE	1080p 30fps	5 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 1.199.000,00
43	REDMI	Redmi 13C	168 x 78 x 8.1 mm	192 g	plastic back, plastic frame	IPS	109.7 cm ²	720 x 1600	Android 13	Helio G85	Octa-core	6	128	50 MP	DUAL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 1.499.000,00
44	REDMI	Redmi 13C	168 x 78 x 8.1 mm	192 g	plastic back, plastic frame	IPS	109.7 cm ²	720 x 1600	Android 13	Helio G85	Octa-core	8	256	50 MP	DUAL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 1.799.000,00
45	REDMI	Redmi 12	168.6 x 76.3 x 8.2 mm	198.5 g	plastic frame, glass back	IPS	109.5 cm ²	1080 x 2460	Android 13	Helio G88	Octa-core	8	128	50 MP	TRIPLE	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 1.799.000,00
46	REDMI	Redmi 12	168.6 x 76.3 x 8.2 mm	198.5 g	plastic frame, glass back	IPS	109.5 cm ²	1080 x 2460	Android 13	Helio G88	Octa-core	8	256	50 MP	TRIPLE	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 1.999.000,00
47	REDMI	Redmi Note 13 Pro 5G	161.2 x 74.2 x 8 mm	187 g	plastic frame, glass back	AMOLED	107.4 cm ²	1220 x 2712	Android 13	Snapdragon 7s Gen 2	Octa-core	8	256	200 MP	TRIPLE	4K 30fps, 1080p 30/60/120fps	16 MP	1080p 30/60fps	USB Type-C 2.0	5100	Rp 4.399.000,00
48	ASUS	ROG Phone 8 Pro	163.8 x 76.8 x 8.9 mm	225 g	aluminum frame, glass back	LTPO AMOLED	111.0 cm ²	1080 x 2400	Android 14	Snapdragon 8 Gen 3	Octa-core	16	512	50 MP	TRIPLE	8K 24fps, 4K 30/60fps, 1080p 30/60/120/240fps	32 MP	1080p 30fps	USB Type-C 3.2 Gen 2	5500	Rp 14.999.000,00
49	ASUS	ROG Phone 8	163.8 x 76.8 x 8.9 mm	225 g	aluminum frame, glass back	LTPO AMOLED	111.0 cm ²	1080 x 2400	Android 14	Snapdragon 8 Gen 3	Octa-core	12	256	50 MP	TRIPLE	8K 24fps, 4K 30/60fps, 1080p 30/60/120/240fps	32 MP	1080p 30fps	USB Type-C 3.2 Gen 2	5500	Rp 10.999.000,00
50	REALME	Realme 10 Pro 5G	163.7 x 74.2 x 8.1 mm	190 g	plastic frame, plastic back	IPS	109.0 cm ²	1080 x 2400	Android 13	Snapdragon 695 5G	Octa-core	8	128	108 MP	DUAL	1080p 30fps	16 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 4.299.000,00
51	REALME	Realme 10 Pro+ 5G	161.5 x 73.9 x 7.8 mm	173 g	plastic frame, plastic back	IPS	108.0 cm ²	1080 x 2412	Android 13	Mediatek Dimensity 1080	Octa-core	8	256	108 MP	TRIPLE	4K 30fps, 1080p 30/60/120/480fps, 720p 960fps	16 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 5.999.000,00
52	REALME	Realme 10 Pro+ 5G	161.5 x 73.9 x 7.8 mm	173 g	plastic frame, plastic back	AMOLED	108.0 cm ²	1080 x 2412	Android 13	Mediatek Dimensity 1080	Octa-core	12	512	108 MP	TRIPLE	4K 30fps, 1080p 30/60/120/480fps, 720p 960fps	16 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 6.999.000,00
53	REALME	Realme C55 NFC	165.5 x 75.9 x 7.9 mm	189.5 g	plastic frame, plastic back	IPS	109.0 cm ²	1080 x 2400	Android 13	Mediatek MT6769H Helio G88	Octa-core	6	128	64 MP	DUAL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.299.000,00
54	REALME	Realme C53 NFC	167.3 x 76.7 x 7.5 mm	182 g	plastic frame, plastic back	IPS	108.7 cm ²	1080 x 2400	Android 13	Unisoc Tiger T612	Octa-core	6	128	50 MP	DUAL	1080p 30fps	8 MP	720p 30fps	USB Type-C 2.0	5000	Rp 1.999.000,00
55	REALME	Realme C53 NFC	167.3 x 76.7 x 7.5 mm	182 g	plastic frame, plastic back	IPS	108.7 cm ²	1080 x 2400	Android 13	Unisoc Tiger T612	Octa-core	8	256	50 MP	DUAL	1080p 30fps	8 MP	720p 30fps	USB Type-C 2.0	5000	Rp 2.299.000,00

56	REAL ME	Realme 11 Pro 5G	161.7 x 73.9 x 8.2 mm	183 g	plastic back, plastic frame	AMOLED	108.0 cm ²	1080 x 2412	Android 13	Mediatek Dimensity 7050	Octa-core	8	256	100 MP	DUAL	4K 30fps, 1080p 30/60/120/480fps, 720p 960fps	16 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 4.599.00,00
57	REAL ME	Realme 11 Pro+ 5G	161.1 x 73.9 x 8.2 mm	183 g	plastic back, plastic frame	AMOLED	108.0 cm ²	1080 x 2412	Android 13	Mediatek Dimensity 7050	Octa-core	12	512	200 MP	TRIPLE	4K 30fps, 1080p 30/60/120/480fps, 720p 960fps	32 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 6.599.00,00
58	REAL ME	Realme C51 NFC	167.2 x 76.7 x 8 mm	186 g	plastic frame, plastic back	IPS	109.7 cm ²	720 x 1600	Android 13	Unisoc Tiger T612	Octa-core	4	128	50 MP	SINGLE	1080p 30fps	5 MP	720p 30fps	USB Type-C 2.0	5000	Rp 1.699.00,00
59	REAL ME	Realme 11 NFC	159.9 x 73.3 x 8 mm	178 g	plastic frame, plastic back	SUPER AMOLED	98.9 cm ²	1080 x 2400	Android 12	Mediatek Helio G99	Octa-core	8	256	108 MP	DUAL	1080p 30fps	16 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 3.299.00,00
60	REAL ME	Realme C67	165.7 x 76 x 7.9 mm	190 g	plastic frame, plastic back	IPS	109.0 cm ²	1080 x 2400	Android 13	Mediatek Dimensity 6100+	Octa-core	8	128	50 MP	DUAL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.399.00,00
61	REAL ME	Realme C67	165.7 x 76 x 7.9 mm	190 g	plastic frame, plastic back	IPS	109.0 cm ²	1080 x 2400	Android 13	Mediatek Dimensity 6100+	Octa-core	8	256	50 MP	DUAL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.799.00,00
62	REAL ME	Realme 12 Pro + 5G	161.5 x 74 x 8.8 mm	196 g	silicone polymer back, plastic back	AMOLED	108.0 cm ²	1080 x 2412	Android 14	Snapdragon 7s Gen 2	Octa-core	8	256	50 MP	TRIPLE	4K 30fps, 1080p 30/60/120fps	32 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 5.999.00,00
63	REAL ME	Realme 12 Pro + 5G	161.5 x 74 x 8.8 mm	196 g	silicone polymer back, plastic back	AMOLED	108.0 cm ²	1080 x 2412	Android 14	Snapdragon 7s Gen 2	Octa-core	12	512	50 MP	TRIPLE	4K 30fps, 1080p 30/60/120fps	32 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 6.999.00,00
64	REAL ME	Realme Note 5G	167.2 x 76.7 x 8 mm	186 g	plastic frame, plastic back	IPS	109.7 cm ²	720 x 1600	Android 13	Unisoc Tiger T612	Octa-core	4	128	13 MP	SINGLE	1080p 30fps	5 MP	720p 30fps	USB Type-C 2.0	5000	Rp 1.549.00,00
65	REAL ME	Realme 12+ 5G	163 x 75.5 x 7.9 mm	190 g	plastic frame, silicone polymer back	AMOLED	107.4 cm ²	1080 x 2400	Android 14	Mediatek Dimensity 7050	Octa-core	8	256	50 MP	TRIPLE	4K 30fps, 1080p 30/60fps	16 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 4.199.00,00
66	REAL ME	Realme 12+ 5G	163 x 75.5 x 7.9 mm	190 g	plastic frame, silicone polymer back	AMOLED	107.4 cm ²	1080 x 2400	Android 14	Mediatek Dimensity 7050	Octa-core	12	512	50 MP	TRIPLE	4K 30fps, 1080p 30/60fps	16 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 4.999.00,00
67	OPPO	Find N3 Flip	166.4 x 75.8 x 7.8 mm	198 g	glass back, aluminum frame	AMOLED	108.0 cm ²	1080 x 2520	Android 13	Mediatek Dimensity 9200	Octa-core	12	256	50 MP	TRIPLE	4K 30fps, 1080p 30/60/240fps	32 MP	4K 30fps, 1080p 30fps	USB Type-C 2.0	4300	Rp 14.499.000,00
68	OPPO	Find N3	153.4 x 143.1 x 5.8 mm	245 g	glass back, aluminum frame	LTPO3 OLED	196.7 cm ²	2268 x 2440	Android 13	Snapdragon 8 Gen 2	Octa-core	16	512	48 MP	TRIPLE	4K 30/60fps, 1080p 30/60/240fps	20 MP	4K 30fps, 1080p 30fps	USB Type-C 2.0	4805	Rp 26.999.000,00
69	OPPO	Reno 11 Pro	162.4 x 74.1 x 7.6 mm	181 g	glass back, plastic frame	AMOLED	108.0 cm ²	1080 x 2412	Android 14	Mediatek Dimensity 8200	Octa-core	12	512	50 MP	TRIPLE	4K 30/60fps, 1080p 30/60/120/480fps	32 MP	4K 30fps, 1080p 30fps	USB Type-C 2.0	4600	Rp 8.999.00,00
70	OPPO	Reno 11	162.4 x 74.3 x 7.9 mm	182 g	glass back, plastic frame	AMOLED	108.0 cm ²	1080 x 2412	Android 14	Mediatek Dimensity 7050	Octa-core	8	256	50 MP	TRIPLE	4K 30/60fps, 1080p 30/60/120/480fps	32 MP	4K 30fps, 1080p 30fps	USB Type-C 2.0	5000	Rp 5.599.00,00
71	OPPO	Reno 11 F	161.1 x 74.7 x 7.5 mm	177 g	glass back, plastic frame	AMOLED	108.0 cm ²	1080 x 2412	Android 14	Mediatek Dimensity 7050	Octa-core	8	256	64 MP	TRIPLE	4K 30fps, 1080p 30/60/120/480fps	32 MP	4K 30fps, 1080p 30fps	USB Type-C 2.0	5000	Rp 4.399.00,00
72	OPPO	Reno 10	162.4 x 74.2 x 8 mm	185 g	glass back, plastic frame	AMOLED	108.0 cm ²	1080 x 2412	Android 13	Mediatek Dimensity 7050	Octa-core	8	256	64 MP	TRIPLE	4K 30fps, 1080p 30/60/120/480fps	32 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 5.399.00,00
73	OPPO	OPPO A98	165.6 x 76.1 x 8.2 mm	192 g	glass back, plastic frame	IPS	109.0 cm ²	1080 x 2400	Android 13	Snapdragon 695 5G	Octa-core	8	256	64 MP	DUAL	1080p 30fps	32 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 3.689.00,00
74	OPPO	OPPO A79	165.6 x 76 x 8 mm	192 g	glass back, plastic frame	IPS	109.0 cm ²	1080 x 2400	Android 13	Mediatek Dimensity 6020	Octa-core	8	256	50 MP	DUAL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 3.599.00,00
75	VIVO	Vivo X100 Pro	164.1 x 75.3 x 8.9 mm	225 g	aluminum frame, glass back	LTPO AMOLED	111.5 cm ²	1260 x 2800	Android 14	Mediatek Dimensity 9300	Octa-core	16	512	62 MP	TRIPLE	8K 30fps, 4K 30/60fps	32 MP	4K 30/60fps, 1080p 30/60fps	USB Type-C 3.2	5400	Rp 16.999.000,00
76	VIVO	Vivo Y28	163.7 x 75.4 x 8.1 mm	186 g	plastic back, plastic frame	IPS	103.4 cm ²	720 x 1612	Android 13	Mediatek Dimensity 6020	Octa-core	8	128	50 MP	DUAL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.599.00,00
77	VIVO	Vivo Y28	163.7 x 75.4 x 8.1 mm	186 g	plastic back, plastic frame	IPS	103.4 cm ²	720 x 1612	Android 13	Mediatek Dimensity 6020	Octa-core	8	256	50 MP	DUAL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.999.00,00

78	VIVO	Vivo Y27s	164.1 x 76.2 x 8.2 mm	19 2 g	plastic frame, plastic back	IPS	106.8 cm ²	1080 x 2388	And roid 13	Snapdragon 680 4G	Octa-core	8	25 6	50 MP	DU AL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.699.000,00
79	VIVO	Vivo Y100 5G	163.2 x 75.8 x 7.8 mm	19 1 g	plastic frame, silicone polymer back	AMOLED	107.4 cm ²	1080 x 2400	And roid 14	Snapdragon 4 Gen 2	Octa-core	8	12 8	50 MP	DU AL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 3.599.999,00
80	VIVO	Vivo Y100 5G	163.2 x 75.8 x 7.8 mm	19 1 g	plastic frame, silicone polymer back	AMOLED	107.4 cm ²	1080 x 2400	And roid 14	Snapdragon 4 Gen 2	Octa-core	8	25 6	50 MP	DU AL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 3.899.999,00
81	VIVO	Vivo Y100	163.2 x 75.8 x 7.8 mm	19 6 g	plastic frame, silicone polymer back	AMOLED	107.4 cm ²	1080 x 2400	And roid 14	Snapdragon 685	Octa-core	8	12 8	50 MP	DU AL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 3.099.000,00
82	VIVO	Vivo Y100	163.2 x 75.8 x 7.8 mm	19 6 g	plastic frame, silicone polymer back	AMOLED	107.4 cm ²	1080 x 2400	And roid 14	Snapdragon 685	Octa-core	8	25 6	50 MP	DU AL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 3.399.000,00
83	VIVO	Vivo V29e 5G	162.4 x 74.9 x 7.7 mm	19 0 g	plastic frame, glass back	AMOLED	107.4 cm ²	1080 x 2400	And roid 13	Snapdragon 695 5G	Octa-core	8	25 6	64 MP	DU AL	1080p 30fps	50 MP	1080p 30fps	USB Type-C 2.0	4800	Rp 4.399.000,00
84	VIVO	Vivo Y17s	163.7 x 75.4 x 8.1 mm	18 6 g	plastic frame, plastic back	IPS	103.4 cm ²	720 x 1612	And roid 13	Mediatek MT6769 Helio G85	Octa-core	4	64	50 MP	DU AL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 1.399.000,00
85	VIVO	Vivo Y17s	163.7 x 75.4 x 8.1 mm	18 6 g	plastic frame, plastic back	IPS	103.4 cm ²	720 x 1612	And roid 13	Mediatek MT6769 Helio G85	Octa-core	4	12 8	50 MP	DU AL	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 1.599.000,00
86	VIVO	Vivo V29	164.2 x 74.4 x 7.5 mm	18 6 g	glass back, plastic frame	AMOLED	111.0 cm ²	1260 x 2800	And roid 13	Snapdragon 778G 5G	Octa-core	8	25 6	50 MP	TRI PLE	4K 30fps, 1080p 30fps	50 MP	1080p 30fps	USB Type-C 2.0	4600	Rp 5.999.000,00
87	VIVO	Vivo V29	164.2 x 74.4 x 7.5 mm	18 6 g	glass back, plastic frame	AMOLED	111.0 cm ²	1260 x 2800	And roid 13	Snapdragon 778G 5G	Octa-core	1 2	51 2	50 MP	TRI PLE	4K 30fps, 1080p 30fps	50 MP	1080p 30fps	USB Type-C 2.0	4600	Rp 6.999.000,00
88	VIVO	Vivo Y27	164.1 x 76.2 x 8.1 mm	19 0 g	plastic frame, plastic back	IPS	106.8 cm ²	1080 x 2388	And roid 13	Mediatek MT6769 Helio G85	Octa-core	6	12 8	50 MP	DU AL	1080p 30fps	50 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 1.749.000,00
89	VIVO	Vivo Y27 5G	164.1 x 76.2 x 8.1 mm	19 0 g	plastic frame, plastic back	IPS	106.8 cm ²	1080 x 2388	And roid 13	Mediatek Dimensity 6020	Octa-core	6	12 8	50 MP	DU AL	1080p 30fps	50 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.599.000,00
90	VIVO	Vivo Y02t	164 x 75.6 x 8.5 mm	18 6 g	plastic back, plastic frame	IPS	102.3 cm ²	720 x 1600	And roid 13	Mediatek MT6765 Helio P35	Octa-core	4	64	8 MP	SIN GG LE	1080p 30fps	5 MP	-	microUS B 2.0	5000	Rp 1.199.000,00
91	POCO	Poco F5	161.1 x 75 x 7.9 mm	18 1 g	plastic back, plastic frame	AMOLED	107.4 cm ²	1080 x 2400	And roid 13	Snapdragon 7+ Gen 2	Octa-core	1 2	25 6	64 MP	TRI PLE	4K 30fps, 1080p 30/60/120fps	16 MP	1080p 30/60fps	USB Type-C 2.0	5000	Rp 5.499.000,00
92	POCO	Poco F5	161.1 x 75 x 7.9 mm	18 1 g	plastic back, plastic frame	AMOLED	107.4 cm ²	1080 x 2400	And roid 13	Snapdragon 7+ Gen 2	Octa-core	8	25 6	64 MP	TRI PLE	4K 30fps, 1080p 30/60/120fps	16 MP	1080p 30/60fps	USB Type-C 2.0	5000	Rp 4.999.000,00
93	POCO	Poco X5 Pro	162.9 x 76 x 7.9 mm	18 1 g	plastic back, plastic frame	AMOLED	107.4 cm ²	1080 x 2400	And roid 12	Snapdragon 778G 5G	Octa-core	6	12 8	108 MP	TRI PLE	4K 30fps, 1080p 30/60/120fps	16 MP	1080p 30/60fps	USB Type-C 2.0	5000	Rp 3.499.000,00
94	POCO	Poco X5 Pro	162.9 x 76 x 7.9 mm	18 1 g	plastic back, plastic frame	AMOLED	107.4 cm ²	1080 x 2400	And roid 12	Snapdragon 778G 5G	Octa-core	8	25 6	108 MP	TRI PLE	4K 30fps, 1080p 30/60/120fps	16 MP	1080p 30/60fps	USB Type-C 2.0	5000	Rp 3.999.000,00
95	POCO	Poco X5	165.9 x 76.2 x 8 mm	18 9 g	plastic back, plastic frame	SUPER AMOLED	107.4 cm ²	1080 x 2400	And roid 12	Snapdragon 695 5G	Octa-core	6	12 8	48 MP	TRI PLE	1080p 30fps	13 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.499.000,00
96	POCO	Poco X5	165.9 x 76.2 x 8 mm	18 9 g	plastic back, plastic frame	SUPER AMOLED	107.4 cm ²	1080 x 2400	And roid 12	Snapdragon 695 5G	Octa-core	8	25 6	48 MP	TRI PLE	1080p 30fps	13 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.999.000,00
97	INFIN IX	INFINIX SMART 8	163.6 x 75.6 x 8.5 mm	18 4 G	plastic back, plastic frame	IPS	104	720 x 1612	And roid 13	Unisoc T606	Octa-core	4	12 8	13 MP	SIN GG LE	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 1.150.000,00
98	INFIN IX	INFINIX HOT 40i	163.6 x 75.6 x 8.3 mm	19 0 g	plastic back, plastic frame	IPS	103.4	720 x 1612	And roid 13	Unisoc T606	Octa-core	8	25 6	50 MP	SIN GG LE	1080p 30fps	8M P	1080p 30fps	USB Type-C 2.0	5000	Rp 1.773.000,00
99	INFIN IX	INFINIX SMART HD	163.6 x 75.6 x 8.5 mm	18 4 G	plastic back, plastic frame	IPS	104.6	720 x 1612	And orid 13	Unisoc T606	Octa-core	4	12 8	13 MP	SIN GG LE	1080p 30fps	8 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 1.350.000,00

100	INFINIX	INFINIX GT 10 PRO	162.7 x 75.9 x 8.1 mm	187 g	plastic back, plastic frame	AMOLED	107.4	1080 x 2400	Android 13	Mediatek Dimensity 8050	Octa-core	8	256	108 MP	TRIPLE	4K 30fps, 1080p 30/60fps	32 mp	4K 30fps, 1080p 30/60fps	USB Type-C 2.0	5000	Rp 2.990.000,00
101	INFINIX	INFINIX NOTE 30 PRO	162.7 x 76 x 8.2 mm	203 g	plastic frame, glass back	AMOLED	107.4	1080 x 2400	Android 13	Mediatek Helio G99	Octa-core	8	256	108 MP	QUAD	1440p 30fps, 1080p 30fps	32 mp	1080p 30fps	USB Type-C 2.0	5000	Rp 3.125.000,00
102	INFINIX	INFINIX NOTE 30	168.6 x 76.6 x 8.6 mm	219 g	plastic frame, glass back	IPS	109.2	1080 x 2460	Android 13	Mediatek Helio G99	Octa-core	8	128	64 MP	TRIPLE	1440p 30fps, 1080p 30/60fps	16 MP	1080p 30fps	USB Type-C 2.0	5000	Rp 2.550.000,00
103	INFINIX	INFINIX HOT 30i	164 x 75.8 x 8.4 mm	191 g	plastic frame, plastic back	IPS	103.4	720 x 1612	Android 13	Unisoc T606	Octa-core	8	128	13 MP	SINGLE	1080p 30fps	8MP	1080p 30fps	USB Type-C 2.0	5000	Rp 1.660.000,00



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Lampiran 5 Source Code Sistem

```
1 public function saveRobot(){
2     $body = $this->request->getPost('body');
3     $display = $this->request->getPost('display');
4     $system = $this->request->getPost('system');
5     $memory = $this->request->getPost('memory');
6     $mainCamera = $this->request->getPost('mainCamera');
7     $frontCamera = $this->request->getPost('frontCamera');
8     $battery = $this->request->getPost('battery');
9     $price = $this->request->getPost('price');
10    $min = $this->request->getPost('min');
11    $max = $this->request->getPost('max');
12
13    // validasi data robot
14    $totalRobot = $body + $display + $system + $memory + $mainCamera + $frontCamera + $battery + $price;
15    if($totalRobot < 1){
16        return redirect()->back()->with('error', 'Minimal total robot yang dimasukan adalah 1!');
17    }
18    if($min == null && $max != null){
19        $hMin = 0;
20        $hMax = preg_replace('/\D/', '', $max);
21        session()->set('filter', true);
22    }
23    else if($min != null && $max != null){
24        $hMin = preg_replace('/\D/', '', $min);
25        $hMax = preg_replace('/\D/', '', $max);
26        session()->set('filter', true);
27    }
28    else if($min != null && $max == null){
29        $hargaMax = $this->smartphone->select('harga')->orderBy('harga', 'desc')->first();
30        $hMin = preg_replace('/\D/', '', $min);
31        $hMax = $hargaMax['harga'];
32        session()->set('filter', true);
33    }
34    else if($min == null && $max != null){
35        $hargaMin = $this->smartphone->select('harga')->orderBy('harga', 'asc')->first();
36        $hMax = preg_replace('/\D/', '', $min);
37        $hMin = $hargaMin['harga'];
38        session()->set('filter', true);
39    }
40    else{
41        $hargaMax = $this->smartphone->select('harga')->orderBy('harga', 'desc')->first();
42        $hMin = 0;
43        $hMax = $hargaMax['harga'];
44    }
45    $hitungData = $this->smartphone->where('harga >=', $hMin)->where('harga <=', $hMax)->countAllResults();
46    if($hitungData < 1){
47        session()->setFlashdata('error', 'Data Smartphone berdasarkan harga '.$min.' - '
48        . $max.' kurang dari 2 Smartphone');
49        return redirect()->to(base_url('rekomendasi'));
50    }
51    $total = $body + $display + $system + $memory + $mainCamera + $frontCamera + $battery + $price;
52    session()->set('body', $body/$total);
53    session()->set('display', $display/$total);
54    session()->set('system', $system/$total);
55    session()->set('memory', $memory/$total);
56    session()->set('mainCamera', $mainCamera/$total);
57    session()->set('frontCamera', $frontCamera/$total);
58    session()->set('battery', $battery/$total);
59    session()->set('price', $price/$total);
60    session()->set('hMin', $hMin);
61    session()->set('hMax', $hMax);
62    session()->set('rekom', true);
63
64    $dataRobot = [
65        'body' => $body,
66        'layar' => $display,
67        'system' => $system,
68        'memory' => $memory,
69        'main_camera' => $mainCamera,
70        'front_camera' => $frontCamera,
71        'battery' => $battery,
72        'harga' => $price,
73        'harga_min' => $hMin,
74        'harga_max' => $hMax,
75        'created_at' => date('Y-m-d H:i:s'),
76        'updated_at' => date('Y-m-d H:i:s'),
77    ];
78    $this->robotUser->insert($dataRobot);
79    session()->set('robotAwal', $dataRobot);
80    return redirect()->to(base_url('algoritma-rekomendasi'));
81 }
```

```

1 public function konversi($kriteria, $sub_kriteria) {
2     $ambil = $this->smartphone->getBy($sub_kriteria);
3
4     $konversi_ambil = [];
5     foreach ($ambil as $data) {
6         $konversi_ambil[] = strtolower($data[$sub_kriteria]);
7     }
8
9     $bobot_data = $this->bobot->select('konversi')->where('sub_kriteria', $sub_kriteria)->findAll();
10
11     $konversi_bobot = [];
12     foreach ($bobot_data as $bobot) {
13         $konversi_bobot[] = $bobot['konversi'];
14     }
15
16     foreach ($konversi_ambil as $konversi) {
17         if (!in_array($konversi, $konversi_bobot)) {
18             $input = [
19                 'kriteria' => $kriteria,
20                 'sub_kriteria' => $sub_kriteria,
21                 'konversi' => $konversi,
22                 'created_at' => date('Y-m-d H:i:s'),
23                 'updated_at' => date('Y-m-d H:i:s'),
24             ];
25             $this->bobot->insert($input);
26         }
27     }
28
29     foreach ($konversi_bobot as $konversi) {
30         if (!in_array($konversi, $konversi_ambil)) {
31             $this->bobot->where('konversi', $konversi)->where('sub_kriteria', $sub_kriteria)->delete();
32         }
33     }
34 }

```

```

1 private function filter($harga){
2     // membuat konversi harga
3     $hargaMin = session()->get('hMin');
4     $hargaMax = session()->get('hMax');
5     $hargaMinResult = $this->smartphone->select('harga')->where('harga >=', $hargaMin)
6     ->where('harga <=', $hargaMax)->orderBy('harga', 'asc')->first();
7     $hargaMaxResult = $this->smartphone->select('harga')->where('harga >=', $hargaMin)
8     ->where('harga <=', $hargaMax)->orderBy('harga', 'desc')->first();
9     $jarak = $hargaMaxResult['harga'] - $hargaMinResult['harga'];
10    $step = $jarak / 100;
11    $hargaPertama = $hargaMinResult['harga'] + $step;
12    // inisialisasi nilai konversi
13    $nilai = 0;
14    for ($i = 0; $i < 99; $i++) {
15        if($harga <= $hargaPertama + ($step * $i)){
16            $nilai = $i;
17            break;
18        }else{
19            $nilai = 100;
20        }
21    }
22    // normalisasi data
23    return $nilai;
24 }
25 private function normalisasiHarga($data){
26     $normalisasi = (100 - $data) / (100 - 0);
27     return $normalisasi;
28 }
29 private function filterBobotharga($data){
30     $hasil = $data * session()->get('price');
31     return $hasil;
32 }

```

```

1 private function umum($sub){
2     $dSm = $this->smartphone->select('id', '. $sub')->findAll();
3     foreach($dSm as $sm){
4         $bobot = $this->bobot->where('sub_kriteria', $sub)->where('konversi', $sm[$sub])->first();
5         $this->kuantitatif->where('id_smartphone', $sm['id'])->set($sub, $bobot['nilai'])->set('updated_at', $this->date)->update();
6     }
7 }

```

```

1 public function angka($sub){
2     $smartphone = $this->smartphone->select('id,merek', '. $sub')->findAll();
3     foreach($smartphone as $sm){
4         // get bobot konversi
5         $getBobot = $this->bobot->where('sub_kriteria', $sub)->orderBy('CAST(nilai AS UNSIGNED)', 'asc')->findAll();
6         $max = $this->bobot->where('sub_kriteria', $sub)->orderBy('CAST(konversi AS UNSIGNED)', 'desc')->first();
7         foreach($getBobot as $bbt){
8             if((float)$sm[$sub] > (float)$max['konversi']){
9                 $nilai = 100;
10                $this->kuantitatif->where('id_smartphone', $sm['id'])
11                    ->set($sub, $nilai)->set('updated_at', $this->date)
12                    ->set('updated_at', $this->date)->update();
13                break;
14            }
15            if((float)$sm[$sub] < (float)$bbt['konversi']){
16                $nilai = $bbt['nilai'];
17                echo $bbt['nilai']. ' < b' . $bbt['nilai'] . ' < b' . $bbt['konversi'];
18                $this->kuantitatif->where('id_smartphone', $sm['id'])
19                    ->set($sub, $nilai)->set('updated_at', $this->date)
20                    ->set('updated_at', $this->date)->update();
21                break;
22            }
23        }
24    }
25 }

```

```

1 private function konversi($sub)
2 {
3     $dkuan = $this->kuanti->select('id_smartphone', '. $sub')->findAll();
4     $min = $this->kuanti->select($sub)
5         ->orderBy('CAST('.$sub.' AS UNSIGNED)', 'asc')
6         ->first();
7     $max = $this->kuanti->select($sub)
8         ->orderBy('CAST('.$sub.' AS UNSIGNED)', 'desc')
9         ->first();
10    $totalKonversi = $this->kuanti->countAllResults();
11    if($totalKonversi <= 1){
12        session()->setFlashdata('error', 'Data belum dikonversi!');
13        return redirect()->back();
14    }
15    if ($min[$sub] != 0 && $max[$sub] != 0) {
16        foreach ($dkuan as $dk) {
17            if($sub != 'harga'){
18                $nilai = ($dk[$sub] - $min[$sub]) / ($max[$sub] - $min[$sub]);
19                $this->convert->where('id_smartphone', $dk['id_smartphone'])->set($sub, $nilai)->update();
20            }else{
21                $nilai = ($max[$sub] - $dk[$sub]) / ($max[$sub] - $min[$sub]);
22                $date = date('Y-m-d H:i:s');
23                $this->convert->where('id_smartphone', $dk['id_smartphone'])->set($sub, $nilai)->update();
24            }
25        }
26    }
27    session()->setFlashdata('successKonversi', 'Berhasil Melakukan Normalisasi Data. ');
28 }

```

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```

1 public function hitung($perhitungan){
2     $dNorm = $this->norm->getWithRange(session()->get('hMin'), session()->get('hMax'));
3     foreach ($dNorm as &$data) {
4         $data['dimensi'] = $data['dimensi'] * session()->get('body');
5         $data['berat'] = $data['berat'] * session()->get('body');
6         $data['build'] = $data['build'] * session()->get('body');
7         $data['lcd_type'] = $data['lcd_type'] * session()->get('display');
8         $data['lcd_size'] = $data['lcd_size'] * session()->get('display');
9         $data['lcd_resolusi'] = $data['lcd_resolusi'] * session()->get('display');
10        $data['os'] = $data['os'] * session()->get('system');
11        $data['chipset'] = $data['chipset'] * session()->get('system');
12        $data['cpu'] = $data['cpu'] * session()->get('system');
13        $data['ram'] = $data['ram'] * session()->get('memory');
14        $data['rom'] = $data['rom'] * session()->get('memory');
15        $data['main_camera'] = $data['main_camera'] * session()->get('mainCamera');
16        $data['main_type'] = $data['main_type'] * session()->get('mainCamera');
17        $data['main_video'] = $data['main_video'] * session()->get('mainVideo');
18        $data['front_camera'] = $data['front_camera'] * session()->get('frontCamera');
19        $data['front_video'] = $data['front_video'] * session()->get('frontCamera');
20        $data['usb'] = $data['usb'] * session()->get('battery');
21        $data['battery_capacity'] = $data['battery_capacity'] * session()->get('battery');
22        if(session()->get('filter')){
23            if($perhitungan >= 1){
24                $data['harga'] = $this->filter($data['sHarga']);
25            }
26            if($perhitungan >= 2){
27                $data['harga'] = $this->normalisasiHarga($data['harga']);
28            }
29            if($perhitungan >= 3){
30                $data['harga'] = $this->filterBobotHarga($data['harga']);
31            }
32        }else{
33            $data['harga'] = $data['harga'] * session()->get('price');
34        }
35        $data['total'] = (((($data['dimensi'] + $data['berat'] + $data['build'])/3)*session()->get('body'))
36        + (((($data['lcd_type'] + $data['lcd_size'] + $data['lcd_resolusi'])/3)*session()->get('display'))
37        + (((($data['os'] + $data['chipset'] + $data['cpu'])/3)*session()->get('system'))
38        + (((($data['ram'] + $data['rom'])/2)*session()->get('memory'))
39        + (((($data['main_camera'] + $data['main_type'] + $data['main_video'])/3)*session()->get('mainCamera'))
40        + (((($data['front_camera'] + $data['front_video'])/2)*session()->get('frontCamera'))
41        + (((($data['usb'] + $data['battery_capacity'])/2)*session()->get('battery'))
42        + ($data['harga']*session()->get('price'));
43    }
44    return $dNorm;
45 }

```

```

1 $dataHasil = $this->hitung(3);
2 usort($dataHasil, function($a, $b) {
3     if ($b['total'] != $a['total']) {
4         return bccomp($b['total'], $a['total'], 10);
5     } else {
6         return strcmp($a['sHarga'], $b['sHarga']);
7     }
8 });

```