

김민성

Amazon 데이터셋 기반 추천 시스템 설계 프로젝트

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--추천 시스템 1
--추천 시스템 이름: 품질까지 1등! 가성비가 최고다!
--추천 시스템 테마: 구매자의 경제적 이득을 목표로 가장 높은 할인율을 가지는 제품
추천한다.
  --할인율만 높은 것이 아닌, 일정 수준 이상의 평점, 리뷰수를 가진 제품 선정하여 품
질도 보장할 수 있다.
  --즉, 높은 품질의 제품을 가장 저렴하게 구매할 수 있는 기회 제공

--구현 로직
WITH ProcessedData AS (
  SELECT
    product_name,
    category,
    discounted_price,
    actual_price,
    --할인율 % 제외, 숫자 변환
    ROUND(CAST(REPLACE(CAST(discount_percentage AS STRING), '%',
    '')) AS FLOAT64)) AS discount_percent,
    --평점 숫자 변환
    SAFE_CAST(rating AS FLOAT64) AS rating_value,
    CAST(REPLACE(CAST(rating_count AS STRING), ',', '')) AS INT64) AS review_count,
    product_link
  FROM
    `modulabs-project-465602.250715_project.amazon`)
SELECT
  product_name AS product_name,
  category AS category,
  discounted_price AS discounted_price,
  actual_price AS actual_price,
  discount_percent AS discount_percent,
  rating_value AS rating,
  review_count AS review_count,
```

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product_link AS product_link
FROM
  ProcessedData
WHERE --평점 4.0 이상, 리뷰 100개 이상
  rating_value >= 4.0
  AND review_count >= 100
ORDER BY --할인율 높은 순서로 정렬
  discount_percent DESC
LIMIT 100;

```

rank	product_name	category	discounted_price	actual_price	discount_percent	rating	review_count	product_link
1	Iselle Remote Compatible for Samsung LED/LCD Remote Control Works with All Samsung LED/LCD TV Model No > BN59-607A (Please	Electronics>HomeTheater>TV&V...	299.0	899.0	1.0	4.0	1588	https://www.amazon.in/Iselle-Remote-Compatible-Samsung-Control/dp/B07D1K03H4/ref=sr_1_114?pd_rd_g=1672909129&s=electronics&sr=1-114
2	PrettyKrafts Laundry Basket for clothes with Lid & Handles, Toys Organizer, 75 Ltr Black & Grey	Home&Kitchen>HomeStorage&Organization>LaundryOrganization>LaundryBaskets	351.0	999.0	1.0	4.0	5380	https://www.amazon.in/PrettyKrafts-Laundry-Basket-Clothes-Handles/dp/B0914P4L96/ref=sr_1_45?pd_rd_g=1672939928&s=kitchen&sr=1-45
3	Wayona 3in1 Nylon Braided 66W USB Fast Charging Cable with Type C, Lightning and Micro USB Port, Compatible with iPhone, iPad, Samsung	Computers&Accessories>Accessories>Peripherals>Cables&Accessories>Cables>USB Cables	449.0	1099.0	1.0	4.0	242	https://www.amazon.in/Wayona-Braided-Charging-Lightning-Cable/dp/B08B9F3Y2Y4/ref=sr_1_239?pd_rd_g=1672909136&s=electronics&sr=1-239
4	Ambrane 60W / 3A Fast Charging Output Cable with Type-C to USB for Mobile, Neckband, True Wireless Earphone Charging, 480Mbps	Computers&Accessories>Accessories>Peripherals>Cables&Accessories>Cables>USB Cables	179.0	399.0	1.0	4.0	1423	https://www.amazon.in/Ambrane-Charging-Neckband-Wireless-AC/dp/B09YLXVP7Y/ref=sr_1_442?pd_rd_g=1672895879&s=electronics&sr=1-442
5	Callas Multipurpose Foldable Laptop Table with Cup Holder	Computers&Accessories>Accessories>Peripherals>LaptopAccessories	849.0	4999.0	1.0	4.0	20457	https://www.amazon.in/Callas-Multipurpose-Breakfast-Ergo

페이지당 결과 수: 50 ▼ 1 ~ 50 (전체 100행) |< < > >|

rank	product_name	category	discounted_price	actual_price	discount_percent	rating	review_count	product_link
6	FLIX (Beetle) USB to Micro USB PVC Data Sync & 2A Fast Charging Cable, Made in India, 480Mbps Data Sync, Solid Cable, 1 Meter Long USB	Computers&Accessories>Accessories>Peripherals>Cables&Accessories>Cables>USB Cables	59.0	199.0	1.0	4.0	9378	https://www.amazon.in/FLIX-Charging-480Mbps-Devices-X-CD-M11/dp/B094JNBL25/ref=sr_1_48?pd_rd_g=1672909125&s=electronics&sr=1-48
7	Eureka Forbes Active Clean 700 Watts Powerful Suction & Blower Vacuum Cleaner with Washable HEPA Filter & 6 Accessories, 1 Year	Home&Kitchen>Kitchen&HomeAppliances>Vacuums,Cleaning&Ironing>Vacuums>FloorCare>Vacuums>HandheldVacuums	3179.0	6999.0	1.0	4.0	743	https://www.amazon.in/Eureka-Forbes-Active-Cleaner-washable/dp/B08HCCWCXD/ref=sr_1_273?pd_rd_g=1672923806&s=kitchen&sr=1-273
8	WwCool C1 Car Mobile Holder with One Click Technology, 360° Rotational, Strong Suction Cup, Compatible with 4 to 6	Electronics>Mobiles>Accessories>MobileAccessories>AutomobileAccessories>Cradles	489.0	1999.0	1.0	4.0	3626	https://www.amazon.in/WwCool-C1-Technology-Windshield-Extendable/dp/B09P85DK6/ref=sr_1_104?pd_rd_g=1672895777&s=electronics&sr=1-104
9	JIALTO Mini Waffle Maker 4 Inch- 350 Watts- Stainless Steel Non-Stick Electric Iron Machine for Individual Rotation	Home&Kitchen>Kitchen>HomeAppliances>SmallKitchenAppliances>WaffleMakers>Iron	899.0	1999.0	1.0	4.0	832	https://www.amazon.in/BONIRY-Waffle-Make-Inch-Watts-dp/B09LH2678/ref=sr_1_390?pd_rd_g=1672936811&s=kitchen&

페이지당 결과 수: 50 ▼ 1 ~ 50 (전체 100행) |< < > >|

--추천 시스템 2

--추천 시스템 이름: 카테고리별 인기 상품 추천

--추천 시스템 테마: 전체 인기 상품 추천이 아닌, 각 카테고리별 인기 상품 상위 3개를 추천한다

--소비자는 관심 있는 카테고리에서 인기 상품만 빠르게 찾을 수 있어 시간을 줄여주고 신뢰감을 준다

--인기도 점수 = 평점 * 리뷰 수

--ROW_NUMBER()로 인기도 점수가 높은 순으로 순위 매겨서 상위 3개 추천

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--구현 로직
WITH ProcessedData AS (
  SELECT
    product_name,
    category,
    SAFE_CAST(rating AS FLOAT64) AS rating_value,
    CAST(REPLACE(CAST(rating_count AS STRING), ',' , '' ) AS INT64) AS review_count,
    product_link,
    -- 인기도 점수= 평점 * log(리뷰 수)
    SAFE_CAST(rating AS FLOAT64) * LOG(CAST(REPLACE(CAST(rating_count AS STRING), ',' , '' ) AS INT64)) AS popularity_score
  FROM
    `modulabs-project-465602.250715_project.amazon`
), RankedProducts AS (
  SELECT *,
    ROW_NUMBER() OVER(PARTITION BY category ORDER BY popularity_score DESC) AS category_rank
  FROM
    ProcessedData)
SELECT
  category AS category,
  category_rank AS category_rank,
  product_name AS product_name,
  rating_value AS rating,
  review_count AS review_count,
  product_link AS product_link
FROM
  RankedProducts
WHERE
  category_rank <= 3
ORDER BY
  category, category_rank;

```

명	category	category_rank	product_name	rating	review_count	product_link
1	Car&MotorbikesCarAccessoriesInteriorAccessoriesAirPurifiers&Ionizers	1	Reffar AX30 [MAX] Portable Air Purifier for Car, Home & Office Smart Ionizer Function H13 Grade True HEPA Filter [Internationally Tested]	3.8	1118	https://www.amazon.in/Reffar-AX30-MAX-Internationally-Air-purifiers/dp/B0912WJ87V/ref=sr_1_164?pd_rd_g=1679293558&pf_rd_p=1679293558&pf_rd_t=1164
2	Computers&AccessoriesAccessories&PeripheralsAdaptersUSB&USBAdapters	1	rs [2 Pack] Mini USB C Type C Adapter Plug, Type C Female to USB A Male Charger Charging Cable Adapter Converter compatible for	4.3	4426	https://www.amazon.in/rts-Adapters-Charging-Converter-compatible/dp/B097C564GC/ref=sr_1_121?pd_rd_g=1679293001&pf_rd_p=1679293001&pf_rd_t=1121
3	Computers&AccessoriesAccessories&PeripheralsAdaptersUSB&USBAdapters	2	Kangel [2 Pack] Type C Female to USB A Male Charger Charging Cable Adapter Converter compatible for iPhone 14, 13, 12, 11 Pro	4.0	1540	https://www.amazon.in/Kangel-Type-C-Female-to-USB-A-Male-Charger/dp/B094QWY9B9/ref=sr_1_171?pd_rd_g=167930004&pf_rd_p=167930004&pf_rd_t=1171
4	Computers&AccessoriesAccessories&PeripheralsAudio&VideoAccessoriesPCHeadsets	1	Hp Wired On Ear Headphones With Mic With 3.5 Mm Drivers, In-Built Noise Cancelling, Foldable And Adjustable For Laptop/PC/Office/Home/ 1	3.5	7222	https://www.amazon.in/HP-B4809PA-Headphones-with-Mic/dp/B009LJ2BXA/ref=sr_1_361?pd_rd_g=1679293013&pf_rd_p=1679293013&pf_rd_t=1361
5	Computers&AccessoriesAccessories&PeripheralsAudio&Video	1	JBL Commercial CSLM20B Auxiliary Omnidirectional	3.9	14969	https://www.amazon.in/JBL-Commercial-Omnidirectional-Mi

페이지당 결과 수: 50 ▼ 1 ~ 50 (전체 449명) |< > >|

명	category	category_rank	product_name	rating	review_count	product_link
	deoAccessoriesPCMicrophones		Lavalier Microphone with Battery for Content Creation, Voiceover/Dubbing, Recording			crophone-Recording/dp/B085OCG9DA/ref=sr_1_179?pd_rd_g=167930004&pf_rd_p=167930004&pf_rd_t=1179
6	Computers&AccessoriesAccessories&PeripheralsAudio&VideoAccessoriesPCMicrophones	2	HUMBLE Dynamic Lapel Collar Mic Voice Recording Filter Microphone for Singing Youtube SmartPhones, Black	3.3	2804	https://www.amazon.in/HUMBLE-Dynamic-Recording-Microphone-SmartPhones/dp/B08H07JQHJ/ref=sr_1_203?pd_rd_g=167930005&pf_rd_p=167930005&pf_rd_t=1203
7	Computers&AccessoriesAccessories&PeripheralsAudio&VideoAccessoriesPCSpeakers	1	Zabtronics Zeb Wonderbar 10 USB Powered 2.0 Computer Speaker with RGB Lights	4.0	7352	https://www.amazon.in/Zabtronics-Zeb-Wonderbar-Powered-Computer-Speaker/dp/B08W9PX15C/ref=sr_1_285?pd_rd_g=1679293008&pf_rd_p=1679293008&pf_rd_t=1285
8	Computers&AccessoriesAccessories&PeripheralsAudio&VideoAccessoriesPCSpeakers	2	ZEBRONICS Zeb-Warrior II 10 watts 2.0 Multimedia Speaker with RGB Lights, USB Powered, AUX Input, Volume Control Pod for PC, Laptops,	4.1	5195	https://www.amazon.in/ZEBRONICS-Zeb-Warrior-Speaker-Laptops-Desktop/dp/B08SBH49MM/ref=sr_1_394?pd_rd_g=1672903014&pf_rd_p=1672903014&pf_rd_t=1394
9	Computers&AccessoriesAccessories&PeripheralsAudio&VideoAccessoriesWebcams&VideoEquipmentWebcams	1	Logitech C270 Digital HD Webcam with Widescreen HD Video Calling, HD Light Correction, Noise-Reducing	4.3	20398	https://www.amazon.in/Logitech-C270-HD-Webcam-Black/dp/B008Q89J6Y/ref=sr_1_2307?pd_rd_g=167930006&pf_rd_p=167930006&pf_rd_t=12307

페이지당 결과 수: 50 ▼ 1 ~ 50 (전체 449명) |< > >|

--추천 시스템 3

--추천 시스템 이름: 얼리어답터에게 신상!!! 추천

--추천 시스템 테마: 최신 기술 반영이 중요한 'Computers & Accessories', 'Electronics' 카테고리에서 상대적으로 리뷰 수는 적지만 높은 평점을 받아 초기 구매자에게 높은 평점을 받는 신상 제품 추천

--특히 'Computers & Accessories', 'Electronics'에 많은 얼리어답터 특성의 구매자 타겟팅

--좋은 신상 > 적은 리뷰 수, 높은 평점

--구현 로직

WITH ProcessedData AS (

SELECT

product_name,

category,

--평점 숫자 변환

SAFE_CAST(rating AS FLOAT64) AS rating_value,

--심표 제거

SAFE_CAST(REPLACE(CAST(rating_count AS STRING), ',', '')) AS INT64)

```

AS review_count,
  about_product,
  product_link
FROM
  `modulabs-project-465602.250715_project.amazon`
)
SELECT
  product_name,
  category,
  rating_value AS rating,
  review_count,
  about_product,
  product_link
FROM
  ProcessedData
WHERE
  --해당 카테고리 선별
  (category LIKE '%Computers&Accessories%' OR category LIKE '%Electronics%')
  --평점 4.4 이상
  AND rating_value >= 4.4
  --리뷰 수 50개 이상 1000개 이하 제품
  AND review_count BETWEEN 50 AND 1000
ORDER BY
  --평점 높은 순 > 리뷰 많은 순 정렬
  rating_value DESC, review_count DESC
LIMIT 50;

```

번호	product_name	category	rating	review_count	about_product	product_link
1	WeCool SS Long Selfie Stick, with Large Reinforced Tripod Stand up to 61 inch / 156 Cms, Ultra Long Multi Function Bluetooth Selfie	Electronics/Mobiles&Accessories/MobileAccessories/Photo&VideoAccessories/SelfieSticks	4.6	245	64" Tall Cell Phone Tripods with 7 section adjustable telescopic poles, the phone selfie stick tripod stand is tall enough, can be adjusted from	https://www.amazon.in/WeCool-Reinforced-Function-Bluetooth-Compatible/dp/B08W6XK8C7/ref=rr_1_445?igdc=1672959879&electronics&=1-44
2	WeCool SS Long Selfie Stick, with Large Reinforced Tripod Stand up to 61 inch / 156 Cms, Ultra Long Multi Function Bluetooth Selfie	Electronics/Mobiles&Accessories/MobileAccessories/Photo&VideoAccessories/SelfieSticks	4.6	245	64" Tall Cell Phone Tripods with 7 section adjustable telescopic poles, the phone selfie stick tripod stand is tall enough, can be adjusted from	https://www.amazon.in/WeCool-Reinforced-Function-Bluetooth-Compatible/dp/B08W6XK8C7/ref=rr_1_484?igdc=1672903019&computers&=1-48
3	Duracell USB Lightning Apple Certified (MFi) Braided Sync & Charge Cable For Iphone, Ipad And Ipod. Fast Charging Lightning Cable, 3.9 Feet	Computers&Accessories&Accessories&Peripherals/Cables&Accessories/Cables/USB Cables	4.5	815	Supports Ios Devices With Max Output Up To 2.4A Up To 10,000+ Bend And 10,000+ Plugging And Unplugging Test Ensure This Cable A Longer	https://www.amazon.in/DURACELL-Lightning-Certified-braided-Devices/dp/B09C5H0XFC1/ref=rr_1_138?igdc=1672895784&electronics&=1-138
4	Duracell USB Lightning Apple Certified (MFi) Braided Sync & Charge Cable For Iphone, Ipad And Ipod. Fast Charging Lightning Cable, 3.9 Feet	Computers&Accessories&Accessories&Peripherals/Cables&Accessories/Cables/USB Cables	4.5	815	Supports Ios Devices With Max Output Up To 2.4A Up To 10,000+ Bend And 10,000+ Plugging And Unplugging Test Ensure This Cable A Longer	https://www.amazon.in/DURACELL-Lightning-Certified-braided-Devices/dp/B09C5H0XFC1/ref=rr_1_126?igdc=1672903018&computers&=1-126
5	Duracell USB Lightning Apple Certified (MFi) Braided Sync &	Computers&Accessories&Accessories&Peripherals/Cables&A	4.5	815	Supports Ios Devices With Max Output Up To 2.4A Up To	https://www.amazon.in/DURACELL-Lightning-Certified-braided-Devices/dp/B09C5H0XFC1/ref=rr_1_138?igdc=1672895784&electronics&=1-138

페이지당 결과 수: 50 1 - 24 (전체 24명) | < > >>


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SELECT
    product_id,
    --긍정단어가 몇개 나왔는지 횟수 세기
    --(본 문장) - (해당 긍정 단어를 제외한 문장) = 나온 길이 / 단어 길이 > 몇번 단어
    가 나왔는지 알 수 있다
    (
        (LENGTH(LOWER(review_content)) - LENGTH(REPLACE(LOWER(review
_content), 'great', ''))) / LENGTH('great') +
        (LENGTH(LOWER(review_content)) - LENGTH(REPLACE(LOWER(review
_content), 'love', ''))) / LENGTH('love') +
        (LENGTH(LOWER(review_content)) - LENGTH(REPLACE(LOWER(review
_content), 'perfect', ''))) / LENGTH('perfect') +
        (LENGTH(LOWER(review_content)) - LENGTH(REPLACE(LOWER(review
_content), 'excellent', ''))) / LENGTH('excellent')
    ) AS keyword_score
FROM
    ProcessedData
WHERE
    rating_count > 0 AND rating_count < 50
), AggScores AS (
    SELECT
        product_id,
        --total score: 긍정 키워드가 몇번 나왔는가
        SUM(keyword_score) AS total_score
    FROM
        PositiveKeywordCount
    GROUP BY
        product_id
)
--3. 점수가 있는 정보만 출력
SELECT
    p.product_name,
    p.category,
    p.rating_count,
    agg.total_score,
    p.product_link
FROM
    ProcessedData AS p

```

JOIN

AggScores AS agg

ON p.product_id = agg.product_id

WHERE

agg.total_score > 0

GROUP BY

p.product_name,

p.category,

p.rating_count,

agg.total_score,

p.product_link

ORDER BY

agg.total_score DESC, p.rating_count DESC

rank	product_name	category	rating_count	total_score	product_link
1	Oratech Coffee Frother electric, milk frother electric, coffee beater, cappuccino maker, Coffee Foamer, Mocktail Mixer, Coffee Foam	Home&Kitchen Kitchen&Home Appliances Small Kitchen Appliances Hand Blenders	28	5.0	https://www.amazon.in/Oratech-electric-cappuccino-Mocktail-Multicolour/dp/B0BQ9K23Y1/ref=sr_1_216?gclid=1672923601&pf_rd_p=1216
2	Amazon Basics Wireless Mouse 2.4 GHz Connection, 1600 DPI Type-C Adapter Up to 12 Months of Battery Life Ambidextrous Design	Computers&Accessories Accessories Peripherals Keyboards Mice&Input Devices Mice	23	4.0	https://www.amazon.in/Wireless-Connection-Battery-Ambidextrous-Suitable/dp/B0B2H6CJDP1/ref=sr_1_209?gclid=1672903005&pf_rd_p=1200
3	Noise_Colorfit Smart Watch Charger 2 Pin USB Fast Charger Magnetic Charging Cable Adapter (Smart Watch Charger 2 pin)	Electronics Wearable Technology	38	3.0	https://www.amazon.in/Noise_Colorfit-Charger-Magnetic-Charging-Adapter/dp/B0B8M7R92G/ref=sr_1_354?gclid=1672895850&pf_rd_p=135
4	Technotech High Speed HDMI Cable 5 Meter V1.4 - Supports Full HD 1080p (Color May Vary)	Electronics Home Theater TVs & Video Accessories Cables HDMI Cables	25	3.0	https://www.amazon.in/Technotech-High-Speed-Cable-Meter/dp/B016MDK4F4/ref=sr_1_469?gclid=1672909147&pf_rd_p=1469
5	Homeistic Appliance™ Instant Electric Water Heater Faucet	Home&Kitchen Heating,Cooling&Air Quality Water Heaters&G	19	3.0	https://www.amazon.in/Homeistic-Appliance-Electric-bathro

페이지당 결과 수: 50 1 - 19 (전체 19행) |< > >|

rank	product_name	category	rating_count	total_score	product_link
6	Tap For Kitchen And Bathroom Sink Digital Water Heating Tap with Shower Head ABS Body	eyers Instant Water Heaters			om-Tankless/dp/B0BQW937WV/ref=sr_1_173?gclid=1672923598&pf_rd_p=1173
7	Green Tales Heat Seal Mini Food Sealer-Impulse Machine for Sealing Plastic Bags Packaging	Home&Kitchen Kitchen&Home Appliances Small Kitchen Appliances Vacuum Sealers	24	2.0	https://www.amazon.in/Green-Tales-Sealer-Impulse-Machine-Packaging/dp/B0B7L86VCB/ref=sr_1_383?gclid=1672923611&pf_rd_p=1383
8	Hilton Quartz Heater 400/800-Watt ISI 2 Rods Multi Mode Heater Long Lasting Quick Heating Extremely Warm (Grey)	Home&Kitchen Heating,Cooling&Air Quality Room Heaters Electric Heaters	24	2.0	https://www.amazon.in/Hilton-Quartz-Heater-Watt-Certified/dp/B09NFSHCWN/ref=sr_1_485?gclid=1672923617&pf_rd_p=1485
9	ZEBRONIDS HAA2021 HDMI version 2.1 cable with BK @ 60Hz, 4K @ 120Hz, eARC & CEC support, 3D compatible, 2 meters length, 48Gbps max	Electronics Home Theater TVs & Video Accessories Cables HDMI Cables	24	2.0	https://www.amazon.in/Zeb-HAA2021-HDMI-Meter-Cable/dp/B07V9G55XZ/ref=sr_1_177?gclid=1672909133&pf_rd_p=1177
9	VAPJA® Portable Mini Juicer Cup Blender USB Rechargeable with 4 Blades for Shakes and Smoothies	Home&Kitchen Kitchen&Home Appliances Small Kitchen Appliances Juicer Mixer Grinders	4	2.0	https://www.amazon.in/Portable-Rechargeable-Smoothies-Vegetables-BOTTLE/dp/B0BL3B4R5S/ref=sr_1_415?gclid=16

페이지당 결과 수: 50 1 - 19 (전체 19행) |< > >|

--추천 시스템 5

--추천 시스템 이름: 사용자 기반 협업 필터링

--추천 시스템 테마: 특정 제품을 좋아하는 구매자는 다른 제품도 좋아하는가를 분석한다

--내가 좋게 평가한 제품과 같은 평가를 내린 타 구매자의 다른 구매 상품에는 어떤 것이 있는지 추천하는 시스템이다

--구매자에게 비슷한 구매자의 선택을 보여줌으로 좀더 개인화된 선택과 직관적인 추천 가능하다

--개별 제품의 속성이 아닌, 사용자와 사용자 간의 관계를 분석

--구현 로직

--기준 제품: B07JW9H4J1

--SimilarUsers: 기준 제품을 좋아하는 사용자 목록

WITH SimilarUsers AS (

SELECT DISTINCT

user_id

FROM

`modulabs-project-465602.250715_project.amazon`

WHERE

REGEXP_CONTAINS(rating, r'^\d+(\.\d+)?\$') --특수문자가 섞여있을 경우 오류 방지

AND product_id = 'B07JW9H4J1'

AND CAST(rating AS FLOAT64) >= 4.0 --평점 4.0 이상 매긴 사용자 필터링

AND user_id IS NOT NULL),

--기준 제품을 좋게 평가한 사용자들이 좋아한 다른 제품들

Recommendations AS (

SELECT

t.product_id,

t.product_name,

t.category,

t.product_link

FROM

`modulabs-project-465602.250715_project.amazon` AS t

JOIN

SimilarUsers s ON t.user_id = s.user_id

WHERE

REGEXP_CONTAINS(t.rating, r'^\d+(\.\d+)?\$')

AND t.product_id != 'B07JW9H4J1'

--기준 제품은 목록에서 제외한다

AND CAST(t.rating AS FLOAT64) >= 4.0

--평가 기준은 4.0으로 동일, 다른 제품도 4.0 이상이면 필터링

```
)
SELECT
  r.product_name AS `추천 제품명`,
  r.category AS `카테고리`,
  --추천점수
  --비슷한 사용자 그룹에서 각 제품에 몇번 등장 했는가 카운팅
  --높을수록 많은 사람이 (비슷한 사람이) 구매한 제품이다 > 신뢰도가 높은 물품이다
  COUNT(r.product_id) AS recommendation_score,
  ANY_VALUE(r.product_link) AS `제품_링크`
FROM
  Recommendations AS r
GROUP BY
  r.product_name, r.category
ORDER BY
  recommendation_score DESC;
```

순번	제품명	카테고리	제품, 링크
1	Wayona Nylon Braided (2 Pack) Lightning Fast Usb Data Cable Fast Charger Cord For Iphone, Ipad Tablet (3 Ft Pack Of 2, Grey)	Computers&Accessories/Acessories&Peripherals/Cables&Accessories/Cables/USB/Cables	1 https://www.amazon.in/Wayona-Braided-WN3L02-Syncing-Charging/dp/B07JH1C41D/ref=sr_1_98?pd_rd_i=1672909129&pf_rd_p=1672909129&pf_rd_t=3&pf_rd_z=electronics&sr=1-98
2	Wayona Nylon Braided 2M / 6ft Fast Charge Usb To Lightning Data Sync And Charging Cable For Iphone, Ipad Tablet (6 Ft Pack Of 1, Black)	Computers&Accessories/Acessories&Peripherals/Cables&Accessories/Cables/USB/Cables	1 https://www.amazon.in/Wayona-Braided-WN3L01-Syncing-Charging/dp/B07JGDBSM1/ref=sr_1_119?pd_i=1672909129&pf_rd_p=1672909129&pf_rd_t=3&pf_rd_z=electronics&sr=1-119
3	Wayona Nylon Braided 3A Lightning to USB A Syncing and Fast Charging Data Cable for iPhone, Ipad (3 FT Pack of 1,Black)	Computers&Accessories/Acessories&Peripherals/Cables&Accessories/Cables/USB/Cables	1 https://www.amazon.in/Wayona-Braided-WN3LB1-Syncing-Charging/dp/B07JW1Y6XV/ref=sr_1_46?pd_i=1672909125&pf_rd_p=1672909125&pf_rd_t=3&pf_rd_z=electronics&sr=1-46
4	Wayona Nylon Braided Usb Syncing And Charging Cable Sync And Charging Cable For Iphone, Ipad (3 Ft, Black) - Pack Of 2	Computers&Accessories/Acessories&Peripherals/Cables&Accessories/Cables/USB/Cables	1 https://www.amazon.in/Wayona-Braided-WN3LB2-Syncing-Charging/dp/B07JH1CBGW/ref=sr_1_241?pd_i=1672909136&pf_rd_p=1672909136&pf_rd_t=3&pf_rd_z=electronics&sr=1-241
5	Wayona Usb Nylon Braided	Computers&Accessories/Acessories&Peripherals/Cables&Accessories/Cables/USB/Cables	1 https://www.amazon.in/Wayona-Braided-WN3LB2-Syncing-Charging/dp/B07JH1CBGW/ref=sr_1_241?pd_i=1672909136&pf_rd_p=1672909136&pf_rd_t=3&pf_rd_z=electronics&sr=1-241

페이지당 결과 수: 50 1 - 5 (전체 5항) | < > > >

5	Wayona Usb Nylon Braided Data Sync And Charging Cable For Iphone, Ipad Tablet (Red, Black)	Computers&Accessories/Acessories&Peripherals/Cables&Accessories/Cables/USB/Cables	1 https://www.amazon.in/Wayona-Braided-WN3LB2-Syncing-Charging/dp/B07JH1CBGW/ref=sr_1_241?pd_i=1672909136&pf_rd_p=1672909136&pf_rd_t=3&pf_rd_z=electronics&sr=1-241
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페이지당 결과 수: 50 1 - 5 (전체 5항) | < > > >