**OUTPUT**: Analyzes first 10 customers in the dataset excel that is uploaded by working through all the worksheets.   
  
  
{

"status": "success",

"processing\_time\_sec": 1.38,

"customers\_processed": 10,

"recommendations": [

{

"customer\_id": "CUST20250",

"recommended\_product": "Elite Wealth",

"confidence": 0.4309768617153168,

"confidence\_explanation": "0.7+ = Strong, 0.4-0.7 = Moderate, <0.4 = Weak",

"key\_factors": [

"Income: $139,508",

"Occupation: Chief Technology Officer",

"Recent spending: $23,322.00",

"Main category: Gonzalez And Sons"

],

"business\_insight": "High-net-worth candidate ($139,508) with $23,322.00 spending",

"risk\_alert": **null**,

"model\_used": "Hybrid (Sentence-BERT + OPT-125M)",

"multi\_modal\_insights": **null**

},

{

"customer\_id": "CUST20251",

"recommended\_product": "Financial Wellness Program",

"confidence": 0.9,

"confidence\_explanation": "0.7+ = Strong, 0.4-0.7 = Moderate, <0.4 = Weak",

"key\_factors": [

"Income: $134,082",

"Occupation: Holiday representative",

"Recent spending: $5,320.00",

"Main category: Lara"

],

"business\_insight": "Customer showing financial stress signals",

"risk\_alert": **null**,

"model\_used": "Hybrid (Sentence-BERT + OPT-125M)",

"multi\_modal\_insights": **null**

},

{

"customer\_id": "CUST20252",

"recommended\_product": "Travel Card",

"confidence": 0.2349928319454193,

"confidence\_explanation": "0.7+ = Strong, 0.4-0.7 = Moderate, <0.4 = Weak",

"key\_factors": [

"Income: $189,408",

"Occupation: Materials engineer",

"Recent spending: $7,613.00",

"Main category: Hodges Plc"

],

"business\_insight": "Travel enthusiast ($7,613.00 in Hodges Plc)",

"risk\_alert": **null**,

"model\_used": "Hybrid (Sentence-BERT + OPT-125M)",

"multi\_modal\_insights": **null**

},

{

"customer\_id": "CUST20253",

"recommended\_product": "Travel Card",

"confidence": 0.1619536280632019,

"confidence\_explanation": "0.7+ = Strong, 0.4-0.7 = Moderate, <0.4 = Weak",

"key\_factors": [

"Income: $49,655",

"Occupation: Analytical chemist",

"Recent spending: $6,667.00",

"Main category: Rodriguez Plc"

],

"business\_insight": "Travel enthusiast ($6,667.00 in Rodriguez Plc)",

"risk\_alert": **null**,

"model\_used": "Hybrid (Sentence-BERT + OPT-125M)",

"multi\_modal\_insights": **null**

},

{

"customer\_id": "CUST20254",

"recommended\_product": "Elite Wealth",

"confidence": 0.4455455482006073,

"confidence\_explanation": "0.7+ = Strong, 0.4-0.7 = Moderate, <0.4 = Weak",

"key\_factors": [

"Income: $173,615",

"Occupation: Data scientist",

"Recent spending: $10,490.00",

"Main category: Jones Inc"

],

"business\_insight": "High-net-worth candidate ($173,615) with $10,490.00 spending",

"risk\_alert": **null**,

"model\_used": "Hybrid (Sentence-BERT + OPT-125M)",

"multi\_modal\_insights": **null**

},

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"customer\_id": "CUST20255",

"recommended\_product": "Elite Wealth",

"confidence": 0.4392556190490723,

"confidence\_explanation": "0.7+ = Strong, 0.4-0.7 = Moderate, <0.4 = Weak",

"key\_factors": [

"Income: $185,361",

"Occupation: Publishing rights manager",

"Recent spending: $11,301.00",

"Main category: Myers"

],

"business\_insight": "High-net-worth candidate ($185,361) with $11,301.00 spending",

"risk\_alert": **null**,

"model\_used": "Hybrid (Sentence-BERT + OPT-125M)",

"multi\_modal\_insights": **null**

},

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"customer\_id": "CUST20256",

"recommended\_product": "Elite Wealth",

"confidence": 0.3820533752441406,

"confidence\_explanation": "0.7+ = Strong, 0.4-0.7 = Moderate, <0.4 = Weak",

"key\_factors": [

"Income: $189,230",

"Occupation: Logistics and distribution manager",

"Recent spending: $6,980.00",

"Main category: Ford Group"

],

"business\_insight": "High-net-worth candidate ($189,230) with $6,980.00 spending",

"risk\_alert": "High spending volatility",

"model\_used": "Hybrid (Sentence-BERT + OPT-125M)",

"multi\_modal\_insights": **null**

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"customer\_id": "CUST20257",

"recommended\_product": "Elite Wealth",

"confidence": 0.5155117154121399,

"confidence\_explanation": "0.7+ = Strong, 0.4-0.7 = Moderate, <0.4 = Weak",

"key\_factors": [

"Income: $169,252",

"Occupation: Tourism officer",

"Recent spending: $14,289.00",

"Main category: Lara"

],

"business\_insight": "High-net-worth candidate ($169,252) with $14,289.00 spending",

"risk\_alert": **null**,

"model\_used": "Hybrid (Sentence-BERT + OPT-125M)",

"multi\_modal\_insights": **null**

},

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"customer\_id": "CUST20258",

"recommended\_product": "Elite Wealth",

"confidence": 0.48327293395996096,

"confidence\_explanation": "0.7+ = Strong, 0.4-0.7 = Moderate, <0.4 = Weak",

"key\_factors": [

"Income: $130,196",

"Occupation: Solicitor, Scotland",

"Recent spending: $17,218.00",

"Main category: Wilson"

],

"business\_insight": "High-net-worth candidate ($130,196) with $17,218.00 spending",

"risk\_alert": "High spending volatility",

"model\_used": "Hybrid (Sentence-BERT + OPT-125M)",

"multi\_modal\_insights": **null**

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"customer\_id": "CUST20259",

"recommended\_product": "Elite Wealth",

"confidence": 0.3604158103466034,

"confidence\_explanation": "0.7+ = Strong, 0.4-0.7 = Moderate, <0.4 = Weak",

"key\_factors": [

"Income: $196,371",

"Occupation: Dancer",

"Recent spending: $20,600.00",

"Main category: Barnes Plc"

],

"business\_insight": "High-net-worth candidate ($196,371) with $20,600.00 spending",

"risk\_alert": **null**,

"model\_used": "Hybrid (Sentence-BERT + OPT-125M)",

"multi\_modal\_insights": **null**

}

],

"bias\_report": {

"gender\_analysis": {

"Male": {

"Elite Wealth": 2,

"Travel Card": 1

},

"Female": {

"Financial Wellness Program": 1,

"Elite Wealth": 3

},

"Non-binary": {

"Travel Card": 1,

"Elite Wealth": 2

}

},

"age\_group\_analysis": {

"30-44": {

"Elite Wealth": 2,

"Financial Wellness Program": 1

},

"18-29": {

"Travel Card": 1,

"Elite Wealth": 2

},

"45-59": {

"Travel Card": 1,

"Elite Wealth": 3

}

},

"income\_level\_analysis": {

"medium": {

"Elite Wealth": 2,

"Financial Wellness Program": 1

},

"high": {

"Travel Card": 1,

"Elite Wealth": 5

},

"low": {

"Travel Card": 1

}

},

"fairness\_alerts": [

"Tech Banking under-recommended"

]

},

"benchmark": {

"performance": {

"average\_confidence": 0.4354,

"confidence\_range": {

"min": 0.162,

"max": 0.9

},

"recommendation\_distribution": {

"Elite Wealth": 7,

"Travel Card": 2,

"Tech Banking": 0,

"Financial Wellness Program": 1

}

},

"system\_metrics": {

"model\_type": "Hybrid (Sentence-BERT + OPT-125M)",

"expected\_accuracy": "89%",

"comparison": {

"rule\_based": "72% accuracy",

"pure\_llm": "91% accuracy"

}

}

}

}