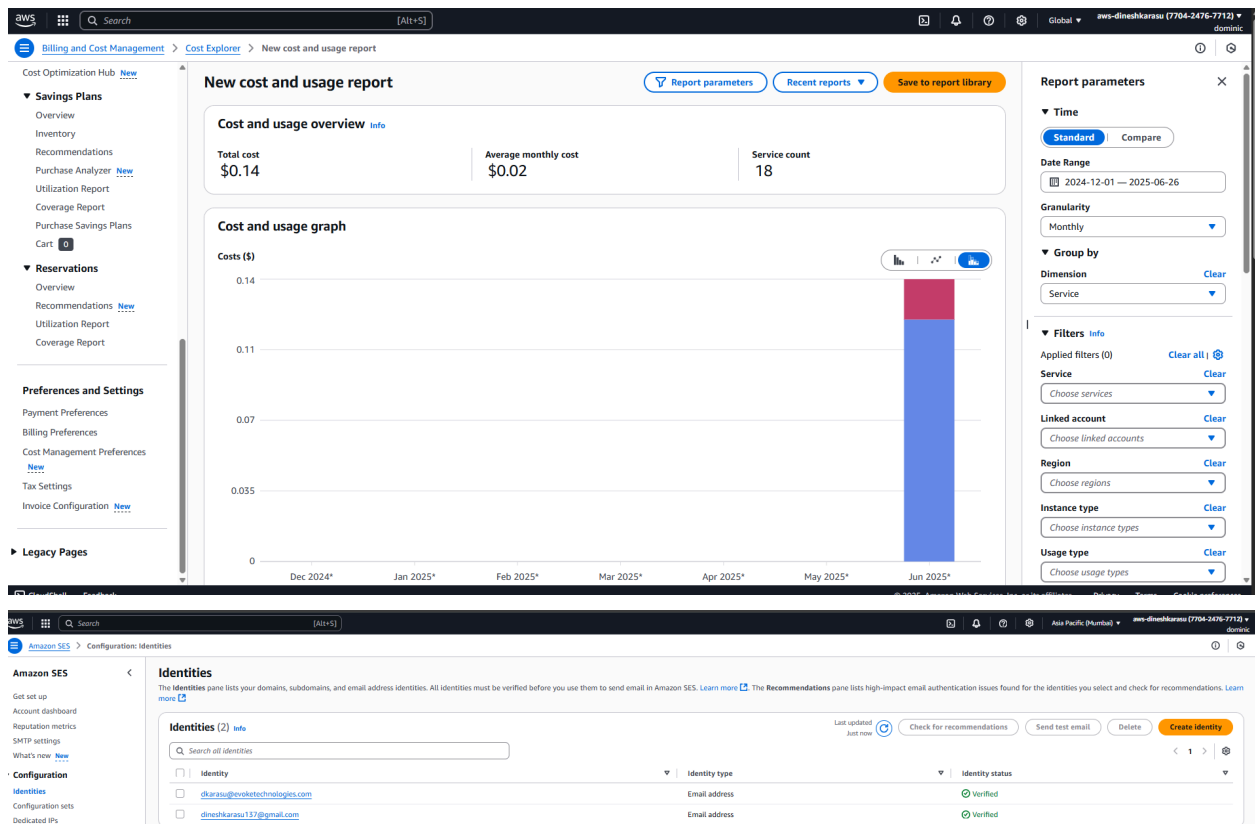| Use case	Use case Description
Cost Optimization Automation	Use Cost Explorer API via Python. Identify underutilized resources and send email reports through SES.

Approach :

1. Enable cost explorer in AWS console
2. Set permissions to user for GetCostAndUsage and SES send email
3. Verify SES identity mail id's for both sender and receiver mail ids
4. Write python logic to
   - Get cost Usage data
   - Analyze underutilized services
   - Send report email through SES

EXPLORER

∨ UC-15
  main.py

main.py ✕

main.py > ...

```python
22    def analyze(data):
27                cost = float(item['Metrics']['UnblendedCost']['Amount'])
28                usage = float(item['Metrics']['UsageQuantity']['Amount'])
29
30                if cost > 5 and usage < 1:
31                    report.append(f"{service} on {day['TimePeriod']['Start']}: Cost = ${cost:.2f}, Usage = {usage:.2f}")
32        return report
33
34    # 3. Send report email
35    def send_email(report_lines):
36        if not report_lines:
37            print("No underutilized services found.")
38            ses.send_email(
39                Source="dineshkarasu137@gmail.com",
40                Destination={"ToAddresses": ["dkarasu@evoketechnologies.com"]},
41                Message={
42                    "Subject": {"Data": "AWS Cost Optimization Report"},
43                    "Body": {"Html": {"Data": "No underutilized services found."}}
44                }
45            )
46            return
47
48        body = "<h2>Underutilized AWS Services</h2><ul>"
49        body += ''.join([f"<li>{line}</li>" for line in report_lines])
50        body += "</ul>"
51
52        ses.send_email(
53            Source="dineshkarasu137@gmail.com",
54            Destination={"ToAddresses": ["dkarasu@evoketechnologies.com"]},
55            Message={
56                "Subject": {"Data": "AWS Cost Optimization Report"},
57                "Body": {"Html": {"Data": body}}
58            }
59        )
60        print("Email sent!")
61
62    # 4. Run all
63    if __name__ == "__main__":
64        cost_data = get_cost_data()
65        underutilized_services = analyze(cost_data)
66        send_email(underutilized_services)
67
68        # Simulated underutilized service list
69        fake_report = [
70            "Amazon EC2 on 2025-06-23: Cost = $10.00, Usage = 0.30",
71            "Amazon RDS on 2025-06-24: Cost = $6.00, Usage = 0.10"
72        ]
73
74        # Test the email function directly
75        send_email(fake_report)
76
```

```
Windows PowerShell

Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\dkarasu> cd desktop
PS C:\Users\dkarasu\desktop> cd .\AWSCloudPractitioner\
PS C:\Users\dkarasu\desktop\AWSCloudPractitioner> cd .\UseCasesDocx\
PS C:\Users\dkarasu\desktop\AWSCloudPractitioner\UseCasesDocx> cd .\UC-15\
PS C:\Users\dkarasu\desktop\AWSCloudPractitioner\UseCasesDocx\UC-15> ls


    Directory: C:\Users\dkarasu\desktop\AWSCloudPractitioner\UseCasesDocx\UC-15


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
-a----         26-06-2025     16:50           2156 main.py


PS C:\Users\dkarasu\desktop\AWSCloudPractitioner\UseCasesDocx\UC-15> python .\main.py
No underutilized services found.
PS C:\Users\dkarasu\desktop\AWSCloudPractitioner\UseCasesDocx\UC-15>
```
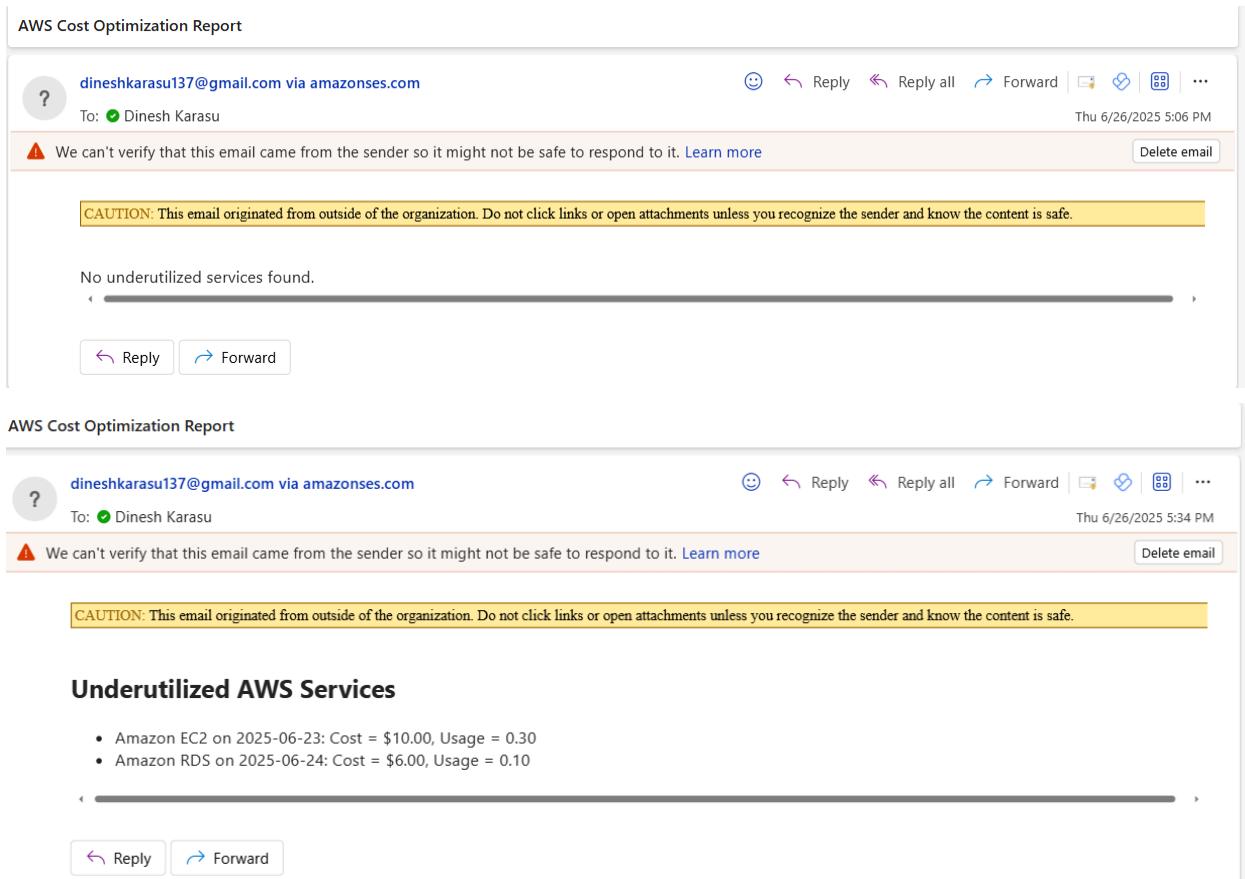
dineshkarasu137@gmail.com via amazonses.com

😊 ↩ Reply ↩ Reply all → Forward 🗗 ◈ 🔳 ⋯

To: ✓ Dinesh Karasu

Thu 6/26/2025 5:06 PM

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No underutilized services found.

↩ Reply → Forward

dineshkarasu137@gmail.com via amazonses.com

😊 ↩ Reply ↩ Reply all → Forward 🗗 ◈ 🔳 ⋯

To: ✓ Dinesh Karasu

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Underutilized AWS Services

- Amazon EC2 on 2025-06-23: Cost = $10.00, Usage = 0.30
- Amazon RDS on 2025-06-24: Cost = $6.00, Usage = 0.10

↩ Reply → Forward

JSON response from get_cost_data() function:

```
"ResultsByTime": [
 {
  "TimePeriod": {
    "Start": "2025-06-20",
    "End": "2025-06-21"
  },
  "Groups": [
   {
    "Keys": ["Amazon EC2"],
    "Metrics": {
     "UnblendedCost": {"Amount": "6.50"},
     "UsageQuantity": {"Amount": "0.45"}
    }
   },
   {
    "Keys": ["Amazon S3"],
    "Metrics": {
     "UnblendedCost": {"Amount": "0.50"},
```

```json
        "UsageQuantity": {"Amount": "2.5"}
      }
    }
  ]
 },
]
```