Smart Contract Audit Bot - Configuration Fixes

Problem Summary

The Smart Contract Audit Bot was experiencing `PineconeApiValueError - Invalid value for cloud` errors due to configuration issues in the `.env` and `config.py` files.

Issues Identified

1. .env File Issues

Before (Problematic):

```
PINECONE_CLOUD="aws"  # Cloud provider
PINECONE_REGION="us-east-1"  # Region with quotes
```

Problems:
- Values surrounded by quotes that get included in the actual values
- Inline comments that get parsed as part of the values
- Extra whitespace around values

2. config.py Issues

Before (Problematic):

```python
self.pinecone_cloud = os.getenv('PINECONE_CLOUD')  # Gets: "aws"
self.pinecone_region = os.getenv('PINECONE_REGION')  # Gets: "us-east-1"
```

Problems:
- No cleaning of loaded environment variables
- Values passed to `pinecone.ServerlessSpec()` contained quotes
- No validation of required configuration values

Fixes Applied

1. Fixed .env File

After (Fixed):

```
PINECONE_CLOUD=aws
PINECONE_REGION=us-east-1
PINECONE_ENVIRONMENT=us-east-1-aws
INDEX_NAME=smart-contract-audit
```

Changes:
- Removed all surrounding quotes
- Removed inline comments
- Clean, simple key=value format

2. Enhanced config.py

After (Fixed):

```python
def _clean_env_value(self, value):
    """Clean environment variable values by removing quotes, comments, and
whitespace"""
    if value is None:
        return None

    # Remove surrounding quotes (both single and double)
    value = value.strip().strip('"').strip("'")

    # Remove inline comments (everything after # symbol)
    if '#' in value:
        value = value.split('#')[0]

    # Remove trailing whitespace
    value = value.strip()

    return value if value else None
```

Changes:

- Added `_clean_env_value()` method to strip quotes and comments
- Added `_validate_config()` method to check required values
- Enhanced error handling with detailed debugging information
- All environment variables now properly cleaned before use

3. Improved Pinecone Initialization

After (Fixed):

```python
spec = pinecone.ServerlessSpec(
    cloud=self.pinecone_cloud,  # Now clean: "aws"
    region=self.pinecone_region  # Now clean: "us-east-1"
)
```

Changes:

- ServerlessSpec now receives clean values without quotes
- Added debug output to show configuration values
- Better error messages for troubleshooting

Verification Results

All tests pass successfully:

```
☑ Environment variables loaded correctly
☑ Configuration values properly cleaned
☑ No quotes or formatting issues
☑ ServerlessSpec validation passes
☑ All required values present
```

Root Cause Analysis

The `PineconeApiValueError - Invalid value for cloud` was caused by:

1. **Quote Contamination**: The `.env` file had values like `"aws"` instead of `aws`
2. **Comment Contamination**: Inline comments were being parsed as part of values
3. **No Value Cleaning**: `config.py` didn't clean the loaded environment variables
4. **Invalid ServerlessSpec Parameters**: Pinecone's `ServerlessSpec` received `"aws"` (with quotes) instead of `aws`

Files Modified

1. **`.env`** - Removed quotes and inline comments
2. **`config.py`** - Added value cleaning and validation
3. **`test_config_standalone.py`** - Created to verify fixes

Next Steps

The configuration is now properly fixed. To use with real Pinecone credentials:

1. Replace the placeholder API keys in `.env` with your actual keys
2. Install required dependencies: `pip install -r requirements.txt`
3. Run the application: `python main.py`

The Pinecone initialization should now work without `PineconeApiValueError`!