Title:

Credit Card OCR QA

Project:

MetaX

Goal:

Credit Card OCR

Task:

Credit Card OCR QA

Product manager:

Dr. Khatir

Name:

Samin Heydarian

Date:

1402/12/19

I. Test Results


```
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/608d1c3e96452.jpg"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Runtime: 4.4696290493011475 seconds
{'card_number': '6104337882900792', 'iban': '', 'cvv2': '', 'expiry_date': '', 'owner_name': 'bankmellat', 'bank_name': 'Melat'}
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card>
```

بانك سامان
Saman Bank

6219 8610 5109 6369
Debit Card

1404/10

cvv2: ...

IR90 0560 0822 8000 3495 5670 01

MS SAHAR TAGHADOSI

```
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/1700298276403.jpg"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Runtime: 18.907763957977295 seconds
{'card_number': '6219861051096369', 'iban': 'IR900560082280003495567001', 'cvv2': '', 'expiry_date': '1404/10', 'owner_name': 'SAHARTAGHADOSI', 'bank_name': 'Saman'}
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card>
```
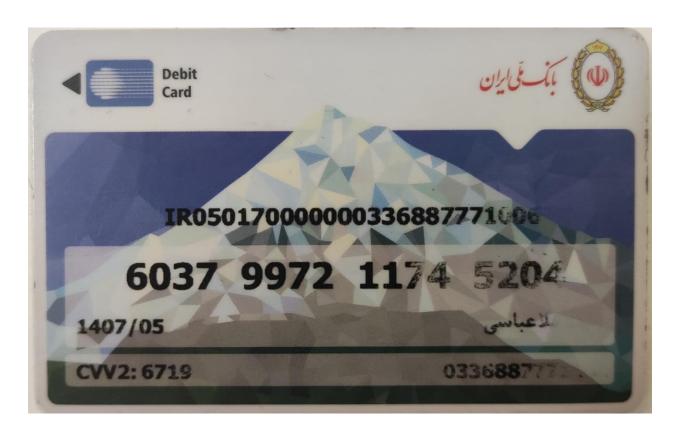
بانک پارسیان

کارت نقدی

IR040540106747000494113602

6221 0612 0967 0308

CVV2:158

تاریخ انقضا: 1406/10

سحر تقدسی

```
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/1700298276414.jpg"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Runtime: 20.809314966201782 seconds
{'card_number': '6221061209670308', 'iban': 'IR040540106747000494113602', 'cvv2': '158', 'expiry_date': '1406/10', 'owner_name': 'دی', 'bank_name': 'Parsian'}
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card>
```

```
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/1700298276442.jpg"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Runtime: 19.935920476913452 seconds
{'card_number': '6037997211745204', 'iban': 'IR050170000000336887771065', 'cvv2': '6715', 'expiry_date': '1407/05', 'owner_name': 'الـعباسی', 'bank_name': 'Melli'}
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card>
```

شماره شبا مخدوشی دارد و کوچک است. البته شماره کارت که مخدوشی دارد به خوبی تشخیص داده شده.

```
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/1700298276451.jpg"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Runtime: 21.27788734436035 seconds
{'card_number': '6274123402074294', 'iban': '', 'cvv2': '856', 'expiry_date': '04/03', 'owner_name': 'vv', 'bank_name': 'Eghtesad Novin'}
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card>
```

کارت نقدی نوین
NOVIN DEBIT CARD

بانک اقتصادنوین
ENBANK

IR 39 0550 3031 7010 6708 8820 01

6274 1211 9857 9716

فاطمه اصغری طولمی

Cvv2 : 346

انقضاء : 05/03

(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/170029827647223.jpg"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Runtime: 20.335536241531372 seconds
{'card_number': '6274121198579716', 'iban': 'IR39055030317010670)888200', 'cvv2': '', 'expiry_date': '05/03', 'owner_name': 'اقتصاد', 'bank_name': 'Eghtesad Novin'}
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card>

بانک سامان
Saman Bank

6219 8610 5109 6369
Debit Card

1404/10

cvv2: 136

IR90 0560 0822 8000 3495 5670 01

MS SAHAR TAGHADOSI

```
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/enhanced_image.jpg"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Runtime: 22.02393102645874 seconds
{'card_number': '6219636979766310', 'iban': '', 'cvv2': '', 'expiry_date': '', 'owner_name': 'IATAGHADOSI', 'bank_name': 'Saman'}
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card>
```


بانک اقتصادنوین
EN BANK

کارت نقدی نوین
NOVIN DEBIT CARD

شبا : IR910550016170106333901001

6274   1211   8956   3588

اشکان خطیر

```
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/Image.jpg"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Runtime: 5.267135143280029 seconds
{'card_number': '6274121189563588', 'iban': 'IR910550016170106333901001', 'cvv2': '', 'expiry_date': '', 'owner_name': 'ناکین', 'bank_name': 'Eghtesad Novin'}
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> []
```

blubank.com

نازنین
دولتشاهی

6219

8619

1125

2582

EXP   CVV2
1404/02   082

Powered by:
Saman Bank

(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/Media (19).jpg"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Runtime: 8.822026491165161 seconds
{'card_number': '6219861911252582', 'iban': '', 'cvv2': '082', 'expiry_date': '1404/02', 'owner_name': 'SamanBank', 'bank_name': 'Saman'}
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card>

(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/MicrosoftTeams-image (1).png"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Runtime: 8.731743574142456 seconds
{'card_number': '6274121202877353', 'iban': '!R05055001648000354417201', 'cvv2': '434', 'expiry_date': '07/05', 'owner_name': 'نقضاء', 'bank_name': 'Eghtesad Novin'}
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card>

آرتیمس
گرامی

6219

8619

1729

2475

EXP
1404/02

CVV2
296

Powered by:
Saman Bank ❋

```
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/MicrosoftTeams-image (2).png"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Runtime: 6.31821346282959 seconds
{'card_number': '6219861917292475', 'iban': '', 'cvv2': '296', 'expiry_date': '1404/02', 'owner_name': 'گرامی', 'bank_name': 'Saman'}
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card>
```



```
(ocr_credit_card) PS F:\PycharmProjects\ocr_credit_card> python ./run.py -pth "Datasets/nody.png"
Neither CUDA nor MPS are available - defaulting to CPU. Note: This module is much faster with a GPU.
Traceback (most recent call last):
  File "F:\PycharmProjects\ocr_credit_card\ocr.py", line 110, in extract_card_info
    extracted_info['card_number'] = list(filter(lambda x: len(x) == 16 and x.isdigit(), temp_num))[0]
IndexError: list index out of range

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "F:\PycharmProjects\ocr_credit_card\run.py", line 54, in <module>
    main(args.image_path)
  File "F:\PycharmProjects\ocr_credit_card\run.py", line 35, in main
    extracted_card_info = ocr_processor.extract_card_info(groups)
  File "F:\PycharmProjects\ocr_credit_card\ocr.py", line 116, in extract_card_info
    try: extracted_info['bank_name'] = self.bank_prefixes[extracted_info['card_number'][:4]]
KeyError: ''
```

نتیجه گیری:

کارت های تست شده: ۱۲ عدد

دقت شماره کارت: ۹۱٪

دقت شماره شبا: ۷۱٪

دقت **cvv2**: ۸۳٪

دقت تاریخ انقضا: ۷۷٪

میانگین زمان اجرا اندازه گرفته شده توسط اینجانب (با کد): ۱۴.۲۵ ثانیه روی **(CPU) i5-459 Intel(R) Core(TM)**. با توجه به یوزر استوری به جز اینکه کارت اخر ارور میدهد بقیه موارد طبق شرایط تعریف شده به خوبی استخراج میشوند. زمان اجرا جز موارد بحث برانگیز است. مثلا اینکه زمان خواسته شده در یوزر استوری روی چه مشخصاتی تا ۵ ثانیه قابل قبول است؟ اگر ما از **GPU** استفاده کنیم صد در صد زمان ما کمتر میشود یا اگر از یک **CPU** بهتر استفاده کنیم زمان کاهش میابد. ضمن اینکه اگر نسبت به زمان گزارش شده اعتراضی دارید لطفا کد اندازه گیری زمان خود را قرار دهید و زمان را در خروجی نشان دهید.

با تشکر از همکار محترم آقای نسیمی