

VEEGTENTAMEN INLEIDING GEGEENSVERWERKING

Faculteit der Exacte Wetenschappen – Vrije Universiteit – 12 augustus 2009 – 15:15-17:15

Er mogen geen hulpmiddelen (rekenmachines, formulebladen e.d.) gebruikt worden bij het beantwoorden van de vragen. Succes!

Eindcijfer = $\text{Min}(10, ((\text{totaal} / 58) * 9) + 1)$

Deeltentamen 1

Open vragen (38 punten)

Het Nederlandse referentiemodel om bancaire zaken af te handelen is al bijna weer aan vervanging toe: de digitale acceptgiro is in opkomst. In ontwikkelingslanden waar de juiste infrastructuur aanwezig is, kan het postale giro model nogmaals uitgerold worden getuige de Giro-Nil case (Giro aan de Nijl). Lees nauwkeurig de volgende tekst.

Giro-Nil

The Egyptian Company for Automated Bill Processing Systems - Giro-Nil S.A.E. was formed in 2005 as a Public Private Partnership between Banque Misr, Egypt Post, Commercial International Bank and Inclusion Group.

جيرو-نيل
Giro-Nil

Giro-Nil will implement in Egypt a nationwide inter-bank infrastructure, through which bill processing, salary and pension processing can be handled fully automated, without involving any cash payments. This will allow fast and safe clearing and settlement (through the partner banks and Egypt Post) of all sorts of financial transactions between all parties involved.



With Giro, the objective of the Egyptian Government will be supported, as an important step towards a cashless economy will be implemented, through fully automated salary & pension payments. Banks will be able to attract new customers with low-cost GiroAccounts.

Consumers will enjoy the convenience of receiving their salary into a GiroAccount and be happy to pay a bill, simply by signing the AcceptGiro form at home. With Giro, corporates will benefit from a dramatic improvement in cash-flow.

Today

For many years, bills are paid in cash: either at the company office, at the Post office or indirectly via cash-collecting people. In order to pay a bill, customers need to have the right amount of cash money in the house. Some services are paid on a quarterly basis, so amounts could add up. And in case of late payment, you might even temporarily be disconnected from a service. For this reason, most people pay their utility bills immediately after receiving their salary. Unfortunately, to pay a bill waiting in line for several hours is very common.

Tomorrow

With AcceptGiro, bill payments will never be the same. Billing companies will send their bills together with an AcceptGiro. Customers only need to sign the AcceptGiro form using their

banking signature, put it in a stamp-free Giro envelope and mail it to Giro-Nil. That's all. Giro-Nil will process each AcceptGiro the same day and request the bank to transfer the money from the GiroAccount of the consumers to the GiroAccount of the billing company. This will occur on a daily basis, every day of the week. Never before have billing companies seen their bills been paid this fast.



Billing company benefits

For a billing company, AcceptGiro has direct benefits: handling effort, time and cost will decrease dramatically. Bill payments will be much faster, more safe, very efficient. AcceptGiro will offer a better service to their customers. Finally, the billing cycle can be upgraded into more frequent billing, immediately improving the cash-flow of the company. And the nice thing is: you don't even need to know which customer has a GiroAccount, since non-GiroAccount holders can also pay their AcceptGiro in cash at the bank or post office. You can send all invoices with an AcceptGiro.

Customer benefits

Bill payments with AcceptGiro are very easy. No more standing in line or waiting in queues to pay your bills. No more getting bundles of cash money from the bank first. No more disconnections from essential utility services, just because of late payment. With AcceptGiro, no cash is needed: just sign and mail. Even if you do not have a GiroAccount yet, simply pay the AcceptGiro at the Post office. Life has never been easier.

Vraag 1 (5 punten)

Pas de werksysteem analyse uit het boek van Steven Alter toe op de Giro Nil case.

Vraag 2 (6 punten: 2+3+1)

- Leg uit wat een context diagram is.
- Geef een context diagram voor het Giro Nil systeem uitgaande van de informatie in de tekst en benoem op de juiste manier de verschillende context-diagram elementen: datastore, dataflow, process, externe entiteit.
- Uitgaande van de informatie in de case, ontbreken er dan nog elementen in het context diagram die er logischerwijs in zouden horen? Zo ja, welke elementen zijn dat?

Vraag 3 (3 punten: 2+1)

- Wat voor soort informatiesysteem is het Giro Nil systeem?
- Geef aan om welk type van de gekozen soort het gaat.

Vraag 4 (6 punten: 3+2+1)

- Welke in het boek van Steven Alter behandelde performance variabelen worden in de Giro Nil case belicht? Licht deze performance variabelen toe aan de hand van citaten uit de tekst.
- Op welke elementen van de in vraag 1 behandelde analyse-elementen uit het werksysteem model hebben welke performance variabelen betrekking?
- Niet alle performance variabelen uit het boek van Steven Alter, worden belicht in de case. Hoeveel procent van de performance variabelen wordt in de Giro Nil case behandeld?

Lees aandachtig het volgende nieuwsbericht:

ID's, balky machines trip some voters

The Columbus Dispatch

Wednesday, November 8, 2006

Malfunctioning machines and confusion about Ohio's new identification law marred Election Day for some voters in central Ohio. Most polling places reported few to no problems, while others had long lines, especially during early-morning voting. Election officials had hoped that an influx of additional voting machines and a new law allowing any voter to cast an absentee ballot [stemmen per post] would ease congestion.

Complaints yesterday centered on three general areas: machines, ID's and voter privacy. **Troubled machines** Breakdowns and computer glitches caused delays and long lines in several polling places. Machines failed at two of the three precincts at the Bexley High School gym. Two of Precinct 4-B's five machines were not working, said poll worker Margaret Park. "This one is chirping like a cricket." Bexley voter Dan Ferdelman waited more than 30 minutes. "I value my vote, whatever time it takes," he said. William A. Anthony Jr., chairman of the Franklin County Board of Elections, said officials will assess whether some machines had defects or poll workers set them up improperly. "It could be some of both," he said. "We trained people four hours, and we thought that was enough. For some, it wasn't."

The paper record added a new wrinkle to the machines. Shannon Andrick, 33, said she and another voter left Buckeye Christian Church in Jackson Township at 8:15 p.m. without voting because all the machines were out of paper and poll workers said they had been unable to get the elections board to send more. In an Upper Arlington polling place, voters alerted poll workers that they were voting for Sherrod Brown but the paper tally showed their votes going to U.S. Sen. Mike DeWine. That problem was quickly fixed, the elections board said. In Reynoldsburg, voting was delayed for 45 minutes at the International Brotherhood of Electrical Workers Local 2020 Union Hall while poll workers repaired equipment. At Worthington Estates Elementary, three of the five voting machines in Precinct 3-B malfunctioned. Voters waited up to 90 minutes to cast ballots. When machines failed to work in Bloom Township Precinct A in Fairfield County, about 20 people were turned away from Bloom Presbyterian Church about 6:30 a.m. and told to return later, said would-be voter Gary Griggs, 42, of Lithopolis. "It's ridiculous." However, like most polling places, a Mifflin Township precinct at VFW Post 9857 on Steltzer Road reported a smooth day. "The voters seem to enjoy the machines," presiding judge Faye Ray said.

ID confusion Questions and conflicting information about Ohio's new ID law irritated many voters. Those without proper ID at the polls had the option of casting a provisional ballot. Ballots are held for 10 days while workers check voters' eligibility. But some voters drove Downtown to the Franklin County Board of Elections office to complain that poll workers demanded unnecessary backup ID. Others called with complaints. John LaMotte said poll workers at Zion Lutheran Church in German Village appeared poorly trained. Although he had no problem with his ID, several voters behind him were told they couldn't cast a regular vote because the address on their driver's license didn't match the one on voter rolls. According to state rules, they should have been allowed to vote a regular ballot. Rather than vote provisionally, those voters left, said LaMotte, 55. "If you extrapolate that over the entire day, that's a lot of people who may or may not come back to vote." Deputy Elections Director Dennis L. White said the board mailed poll workers a four-page memo last weekend about the rapidly shifting identification rules. However, the law was altered within days of the election, he noted, long after many poll workers already had received conflicting instructions. "The bottom line is, your vote is going to count if you're lawfully entitled to vote, whether you vote provisionally or not," White

said. Among those improperly required to produce additional identification yesterday was Cliff Arnebeck, an attorney for civil-rights groups that have filed a federal class-action suit alleging disenfranchisement. Arnebeck has moved. So in addition to his driver's license, which should have sufficed, he returned home to obtain additional proof of his current address. Even then, he said, he was required to provide the last four digits of his Social Security number. "It's voter suppression," he said. "It took me five to six times longer to vote than it should have." Columbus lawyer Maggie Weber, 30, tried to vote a regular ballot with her driver's license as identification after waiting in line for 45 minutes. The address on her license is different from the address where she's registered to vote in Precinct 21-E in Clintonville. But although she also showed poll workers at Maple Grove United Methodist Church a current utility bill with her name and the address where she's registered to vote, she was forced to vote a provisional ballot.

Privacy concerns Cindy Nunamaker, 44, was voting at her Union County precinct when a man standing in line behind her said, "She's just about done." Standing about 3 feet away, he clearly could see her voting screen, which faced him, Nunamaker said. "It just bothered me that people who were lined up and waiting were watching me make my choices," said Nunamaker, who cast her vote in Darby Township. In Franklin County, officials opted against buying privacy curtains. Poll workers were told to set machines with the screen facing a wall, if possible, said Anthony, the elections board chairman. Not everyone did, he acknowledged. "Folks miss the curtain. But we priced out buying curtains for the new machines, and it was expensive," he said. "Plus, it was one more added thing to set up and store."

Dispatch reporters Barbara Carmen, Geoff Dutton, Debbie Gebolys, Kathy Lynn Gray and Matt Tullis contributed to this report.

Vraag 5 (7 punten: 5+2)

- a. Beschrijf kort de ethische issues met betrekking tot elektronisch stemmen en deel ze in aan de hand van het PAPA model (privacy, accuracy, property, access).
- b. Geef een ethisch issue aan dat kan ontstaan bij het gebruik van de *absentee ballot*, oftewel het stemmen per post. Geef aan waar je antwoord in het PAPA model thuis hoort.

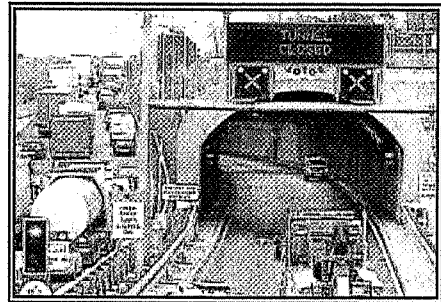
Lees aandachtig het volgende artikel over de problemen rond de Dublin Port Tunnel:

NRA prepares to sue Port Tunnel builders - Monday May 12 2008

The National Roads Authority (NRA) is preparing to sue the contractor who built the Dublin Port Tunnel following a series of system failures.

Engineers are taking apart the tunnel's Scada safety system "piece by piece" as part of a review of operations which is expected to result in legal action. The NRA has told Nishimatsu-Mowlem-Irishenco, the joint venture which built the tunnel, that the system must be replaced and the contractor will be expected to pay. If a dispute arises, the NRA has vowed to go to the courts. The Scada safety system controls the detection of vehicles, fire suppression mechanisms, closed circuit television and emergency lighting and is described as the "eyes, ears, nose and throat" of the tunnel. Its failure has led to the tunnel being closed more than 20 times since it opened in December 2006, resulting in traffic chaos in the capital.

Expensive



Informed sources have told the Irish Independent that the taxpayer will not be paying for any replacement systems required in the €752m tunnel, which is Ireland's most expensive piece of infrastructure. "There were quality assurances with the product, and we're saying to the contractor who built the tunnel that we're taking it apart and conducting a full review," one said. "You will pay us to replace it, at your own cost. If it's a lightbulb that's broke, we look at the cost of replacing it. If it's €10, give us €10 or do it yourself. "The Scada system is our eyes, ears, nose and throat. The manual override systems [handmatige bediening] work fine, but we're taking it apart, the whole thing. There's a bond lodged for this [er zit geld in de stroppenpot], and these guys are insured."

Wrangling

"A big firm don't want residual wrangling. These people have reputations and don't want them dragged through the mud. We're going to seek all remedies open to us to ensure we get justification and that includes taking legal action." The likely cost of replacing the system, which also controls communications, computer control systems, smoke detectors and power supply, could reach as much as €10m. The likelihood of legal action arose after a Freedom of Information request[Wet openbaarheid bestuur] seeking access to NRA records concerning the reliability of the tunnel's Scada system was refused. The reason for refusal was that the documentation could be used in legal action against the joint venture. The NRA said a review was underway. "A detailed review of all operating systems in the tunnel will conclusively examine if there are any issues with the operating system," a spokesman said. Dublin City Council, which commissioned the tunnel, is already in a dispute resolution process with the contractor over the final construction bill. Legal action over the Scada system will be taken as a separate action. Last March it emerged the turbo-jet fans used to clean the air in the tunnel had to be replaced at a cost of €850,000, a year after being installed. NRA sources have also said they were "not confident" about the reliability of the systems in place, but have stressed that the tunnel is safe. Standard clauses in operation contracts can impose penalties against operators who fail to run the system as specified in the contract. The tunnel is under warranty for 12 years, and for the first two years the builders are required to pay for any faults or failures. For 10 years after that, they must pay contractors employed by the NRA to carry out work on the faulty system.

Vraag 6 (7 punten: 4 + 3)

- a. Benoem minstens acht van de tien verschillende risicotypes (intentional en unintentional) die in het boek van Steven Alter genoemd worden.
- b. Geef aan welke risico's uit antwoord a van toepassing kunnen zijn op het artikel over de IT intensieve systemen in de Dublin Port Tunnel en licht ze toe.

Vraag 7 (4 punten: 2 + 2)

- a. Waar staat het begrip EDI voor?
- b. Geef de definitie van Information System Planning.

Multiple Choice vragen (20 punten)

Vermeld je antwoorden op je antwoordenblad bij je overige antwoorden. Niet op dit blad! Kies altijd het beste antwoord.

Vraag 8 (1 punt)

De manier waarop een entiteit wordt geassocieerd met andere entiteiten in ER modellering heet:

- A relatie
- B attribuut
- C object
- D geen van allen

Vraag 9 (1 punt)

Operating systems zijn voorbeelden van :

- A applicatiesoftware
- B end-user software
- C systeemontwikkelsoftware
- D systeemsoftware

Vraag 10 (1 punt)

De professionele titel van het hoofd van informatiesystemen is:

- A CEO
- B CIO
- C EIO
- D CIA

Vraag 11 (1 punt)

Wat zijn de gebruikelijke oorzaken van een operator error (bedieningsfout)

- A onoplettendheid
- B zich niet aan procedures houden
- C beoordelingsfout
- D alle bovenstaande antwoorden
- E geen van bovenstaande antwoorden

Vraag 12 (1 punt)

Een methode om data betekenisloos te maken voor ongeautoriseerde gebruikers door middel van het gebruik van twee sleutels heet:

- A key encryption
- B public key encryption
- C private key encryption
- D geen van bovenstaande antwoorden

Vraag 13 (1 punt)

De basis tool om data te modelleren is:

- A data flow diagram
- B flowchart
- C entity-relationship diagram
- D context diagram

Vraag 14 (1 punt)

Een gestructureerde verzameling van data elementen opgeslagen, beheerd en benaderd via een computer gebaseerd op een voorgedefinieerde relaties tussen voorgedefinieerde types van data elementen gerelateerd aan een specifiek probleem wordt genoemd:

- A DBMS
- B datastructuur
- C database
- D data dictionary

Vraag 15 (1 punt)

Een gerelateerde groep activiteiten of vervolgstappen dat gebruik maakt van mensen, informatie en andere bronnen om waarde voor klanten te creëren heet:

- A scope
- B toegevoegde waarde
- C business proces
- D business activiteit

Vraag 16 (1 punt)

Acceptgiro's worden ingevoerd in de computer via de volgende techniek:

- A MICR
- B OCR
- C CICS
- D BPR

Vraag 17 (1 punt)

De waarschijnlijkheid dat een systeem niet faalt als een klant het wil gebruiken, heet:

- A conformance to standards
- B kwaliteit
- C responsiveness
- D betrouwbaarheid

Vraag 18 (1 punt)

De identificatie van alle data velden in een database, hoe ze zijn geformatteerd en hoe ze worden gecombineerd in verschillende type records en hoe de records onderling gerelateerd zijn, is de definitie van de/het:

- A data dictionary
- B data definition
- C schema
- D metadata

Vraag 19 (1 punt)

Wat is niet één van de vier fasen van ieder IS project:

- A Initiation
- B Development
- C Benchmarking
- D Operation & Maintenance

Vraag 20 (1 punt)

Welke van de onderstaande processen is geen outsourcing proces:

- A Drukken van management boeken van een Indiase uitgever laten uitvoeren in Europa
- B Het met Scada op afstand in de gaten houden van de Dublin Port Tunnel
- C Je kleine broertje/zusje tegen vergoeding jouw afwasbeurt laten doen
- D Het verwerken van acceptgiro's door een daarin gespecialiseerd bedrijf

Vraag 21 (1 punt)

De term ... is nauw samenhangend met query talen en rapporten generatoren:

- A high level language
- B RPG
- C 3GL
- D 4GL

Vraag 22 (1 punt)

Wanneer IS projecten in scope veranderen omdat gebruikers beginnen te leren dat hun originele begrip van de situatie inadequaaf was, dan heet deze situatie:

- A requirements creep
- B system development headache
- C moving targets
- D geen van bovengenoemde antwoorden

Vraag 23 (1 punt)

Programma's die geschreven zijn op een manier die ze toestaat om uitgevoerd te worden op verschillende machines van verschillende leveranciers zijn:

- A machine afhankelijk
- B machine onafhankelijk
- C programma afhankelijk
- D programma onafhankelijk

Vraag 24 (1 punt)

Wat is een gebruikelijke reden voor project falen in de ontwikkelfase?

- A het is te moeilijk om de requirements te definiëren
- B het systeem blijkt te duur
- C het systeem vereist teveel veranderingen in gebruikelijke werkzaamheden
- D Systeem controles zijn ontoereikend

Vraag 25 (1 punt)

Mensen die computers antropomorfiseren hebben de neiging om,

- A computer de schuld te geven voor het maken van fouten
- B mensen kwaliteiten van een computer toe te kennen
- C zich vijandig op te stellen jegens computers
- D alle bovengenoemde antwoorden
- E geen van allen

Vraag 26 (1 punt)

Welke van de onderstaande bedrijven is een ASP (Application Service Provider):

- A Giro Nil
- B Inspectie voor de Gezondheidszorg
- C PayPal
- D Dublin Port Tunnel

Vraag 27 (1 punt)

Voor het grootste gedeelte wordt informatie systeem planning uitgevoerd op de volgende twee niveaus:

- A strategisch en tactisch
- B operationeel en strategisch
- C strategisch en project
- D operationeel en financieel

