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Department of Computer Engineering

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# 5 HML/HG(5 0 RGHO

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- ", QILLWSKDVH ZH XVHG ORW RIZHDN HQUW PROHO\$IVMUUHMLHZ ZH XVHG VRWDO SDUNUFLSDWIRQ LQWHDG RIZHDN HQUW
- " : HUHP RYHG LQMUDFHV IURP ( 5 GLD JUDP DQG FRQQHFVMG DQDHQMMLHV Z LMK VHSDUDVM UHDMMRQ VR HDFK RVMHUDV VXJ J HVMMG
- ": H DOGHG QRVILLEDWARQ P RCHOVR (5 GLD J UDP VLQFH Z H QHHG VR QRVILA XVHU/ Z KHQ DQ. DEVLYUW RUHYHQVUHDWAG VR XVHUDEVLYUWHV DULMH
- ": HLQFOXCHG VRP HUHGXQEDQWRUHU Q NH, VLQ HQUWV P RCHOYE, XQCHUDQQQ WUHP DV CDVKHG, Q WUV YHUURQ Z HXSCDUNG WUV WRR DQG UHP RYHG XQQHFHVVDU DWWWEXWWV
- ": H DOMUHG \$ UNLYWIDE OF VIR & DWVIDE OF MOFH P RUH J HOHUE ROH L/ UHTXILHG VIR VXSSRUVIDOD FDWVIQFOXIQUJ VFHODULWV DUNLWV QLIHFVIRU/ HVI7
- ": H SXVVHSDUDVH UHDWIRQ I RUMP LODUP RYLHV LQWHDG RI LQFOXGQJ LWLQ VDEEDI CHILQUIRQ RI P RYLH DV WULQJ DUUD
- " \$ OVR HSL/RGH KDV UHDMURQ Z LVK WICH VKRZ DV Z HODDV VHDVRQ DIVMUXSGDWH : H QHHG WR NQRZ Z KLFK WIVKRZ RZ QV WICH HSL/RGH 7 KDWL/Z K\ Z H DOGHG WILV UHDMURQ WR ( 5 GDJ UDP



## 5 HOMBRQ 6 FKHP DV

" 1 RVM VKOWZH XVHG 8 3 3 (5 & \$6 (FKDUDFVMUVIRUIRUHU) QNH, V MQFH GRFV GRHV QRW HQDEOH VR SXVODVKHG RQHV

### 6 KRZ

#### 5 HODMIRQDOO RGHO

6 KRZ <u>VKRZ BIG</u> \$ & 7 B,' VKRZ BOOP H VKRZ BIQIR WOULDAN HOU IP DJ HBXUOY WOLDAUBXUO FUHDWIGBDWXSGDWIGBDW

) XQFWRQDO HSHQGHQFLHV

VKRZ BLG ! DFVBLG VKRZ BQDP H VKRZ BLQIR WDWBA HDU LP DJHBXWD WDWDBXWD FUHDWAGBDWXSGDWAGBDW

& DOGLEDUM. H\V ^^VKRZ BLG`

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### 6 HDVRQ

5 HODWARQDOO RGHO

6 HDVRQ. <u>VHDVRQBIG</u> 6 + 2 : B,' \$ & 7 B,' HSL/RCHBQDP H VHDVRQBQR VHDVRQBLQIR VHDVRQB\ HDU LP DJ HBXLOV WDLOHUBXLO

) XQFWRQDO HSHQGHQFLHV

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### (SL/RGH

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) XQFWRQDO HSHQGHQFLHV

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### 0 RMH

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#### ) XQFWRQDO HSHQGHQFLHV

#### PRYLHBIG ! PRYLHBODPH PRYLHBOHNFULSWARQ JHQUH LPOEBUDWQJ LPDJHBXUDY UHODDVHBODWH WDLODUBXUDXSODWHOBDWFUHDWHOBDW

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### 6 IP LODUBO RYLH

5 HODWARQDOO RGHO

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1 RUP DO) RUP %&1)

7 DEOH' HILQUMRQ &5(\$7(7\$%/(MPLODUBPRYLH ILLW&PRYLHBLG ,17(\*(512718// VHFRQGBPRYLHBLG ,17(\*(512718// )25(,\*1.(<ILLW&PRYLHBLG UHHUHQFHV029,(PRYLHBLG 21'(/(7(&\$6&\$'( )25(,\*1.(<VHFRQGBPRYLHBLG UHHUHQFHV5\$7(PRYLHBLG 21'(/(7(&\$6&\$'( 35,0\$5<.(<ILLW&PRYLHBLG VHFRQGBPRYLHBLG

\$FW

5 HODWARQDOO RGHO

\$FV<u>10FVB1G</u>3(56211(/B,' DFVBURDH

) XQFWRQDO HSHQGHQFLHV DFVBLG ! SHU/RQQHBLG DFVBURDH

& DOGLODWM. H V

MDFVBIG`

```
7DEOH'HIQUMRQ
&5($7(7$%)(DFW
DFVBUG ,17(*(512718//$872B,1&5(0(17
DFVBUROH 9$5&+$5&+(&.
DFVBUROH ,1 µ$UMVW/µ'µUHFVRU¶µ6FHQDULVW/µ'µ2WaHu¶
FDWBUG ,17(*(512718//
)25(,*1.(<FDWBUGUHHUHQFHV&$67FDWBUG
21'(/(7(&$6&$'(
35,0$5<.(<DFVBUG
```

### &DWV

#### 5 HODMIRQDOO RGHO

# & DW<u>FDWBIG</u> FDWBQDP H FDWBILP DJ H FDWBILQIR FDWBELLWKGD (FUHDWHGBDW XSQDWHGBDW

#### ) XQFWRQDO HSHQGHQFLHV

FDMB/LG ! FDMB/CDP H FDMB/LC/R FDMB/LP DJ H FDMB/EILJIK/CD/ FUHD/MCBDW XSCD/MCBDW

#### & DQGLGDMM. HV

MFDWBLG`

### 1 RUP DO) RUP %&1)

7 DECH'HILQUARQ

&5(\$7(7\$%/(FDW)

 FDWB/LG
 ,17(\*(5
 127
 18//\$872 B,1&5(0(17)

 FDWB/LQDPH
 9\$5&+\$5
 127
 18//

 FDWB/LQ DJHBX/LO
 9\$5&+\$5
 127
 18//

 FDWB/LQ R
 9\$5&+\$5
 127
 18//

 FDWB/LUKCED
 7,0(67\$03
 18//
 18//

 FUHD/MCBDW
 7,0(67\$03
 18//
 18//

 SCED/MCBDW
 7,0(67\$03
 18//
 18//

 35,0\$5<.(< SHU/RQCHB/LG</td>
 18//
 18//
 18//

### 6 FKHGX0HCB(SL/RCH

5 HODWARQDOO RGHO

6 FKHGX09GB(SLV/RGH (3,62' (B,' 0 (',80 B,' W2P H

) XQFWRQDO HSHQGHQFLHV HSL/RCHBLG P HCLXP BLG ! WP H

& DQGLGDMM. H\V

MHSL/RGHBLG PHGXPBLG`

1 RUP DO) RUP %&1)

7 DECH'HILQUMRQ

&5(\$7(7\$%/(VFKHGX09KBHSL/RGH VMPH 7,0(67\$03 HSL/RGHBLG ,17(\*(512718// PHGLXPBLG ,17(\*(512718// )25(,\*1.(<HSL/RGHBLGUHHUHOFHV(3,62'(HSL/RGHBLG )25(,\*1.(<PHGLXPBLGUHHUHOFHV0(',80 PHGLXPBLG

1 RUP DO) RUP %&1)

MFRP P HQUBLG`

& DOQGLODDM. H.V

) XQFWRQDO HSHQGHQFLHV FRP P HQABLG ! SDUHQABLG XVHUBLG ERG, FUHDWAGBDW

& RPPHQWFRPPHQUBLG3\$5(17B,'86(5B,'ERG, FUHDWHGBDW

5 HODWIRQDOO RGHO

### & RP P HQW

7DEOH'HILQUMRQ &5(\$7(7\$%/(PHGIXP PHGIXPBLG ,17(\*(5 12718//\$872B,1&5(0(17 PHGIXPBCDPH 9\$5&+\$5 12718// PHGIXPBLQIR 9\$5&+\$5 IPDIHBXUOV 7(;7 35,0\$5<.(<PHGIXPBLG

& DQGLGDMM. H\V

WDLOHUBXLO

MP HOLXP BLG`

1 RUP DO) RUP

%&1)

) XQFVLRQDO HSHQGHQFLHV HSLVRGHBIG ! HSLVRGHBQR HSLVRGHBQDP H LP DJ HBXUØ HSLVRGHBLQIR

0 Haxp <u>Phaxp Big</u> Phaxp Badp H Phaxp Biar IP DJHBXU0/

5 HODWARQDOO RGHO

0 HGXP

#### 7 DECH'HILQUWRQ

&5(\$7(7\$%/(FRPPHQW FRPPHQABLG ,17(\*(5 12718//\$872B,1&5(0(17 ERG, 9\$5&+\$5 12718// FUHDWHGEDW 7,0(67\$03 XVHUBLG ,17(\*(5 12718// SDUHQABLG ,17(\*(5 ) 25(,\*1.(< SDUHQABLG UHIHUHCFHV&200(17 FRPPHQABLG ) 25(,\*1.(< XVHUBLG UHIHUHCFHV86(5 XVHUBLG 35,0\$5<.(< FRPPHQABLG

### 6 KRZ B& RP P HQW

5 HODWARQDOO RGHO

6 KRZ B& RP P HQV<u>WKRZ BLG FRP P HQVB/LG</u>

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DOGLEDWM. HIV

MVKRZBLG FRPPHQABLG`

1 RUP DO) RUP %&1)

7 DEOH' HILQUMRQ &5(\$7(7\$%/(VKRZBFRPPHQW VKRZBLG ,17(\*(512718// FRPPHQABLG ,17(\*(512718// )25(,\*1.(<VKRZBLGUHHUHQFHV6+2: )25(,\*1.(<FRPPHQABLGUHHUHQFHV&200(17 35,0\$5<.(<FRPPHQABLGVKRZBLG

### (SL/RGHB&RPPHQW

5 HODWARQDOO RGHO

(SL/RG+B& RP P HQMHSL/RG+BLG FRP P HQMBLG

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DQGLGDMM. H\V

MHSL/RGHBLG FRP P HQABLG`

1 RUP DO) RUP %&1)

7 DECH'HILQUARQ

&5(\$7(7\$%/(HSL/RGHBFRPPHQW HSL/RGHBLG ,17(\*(512718// FRPPHQABLG ,17(\*(512718// )25(,\*1.(<HSL/RGHBLGUHHUHQFHV(3,62'( 21'(/(7(&\$6&\$'( )25(,\*1.(<FRPPHQABLGUHHUHQFHV&200(17 21'(/(7(&\$6&\$'( 35,0\$5<.(<FRPPHQABLGHSL/RGHBLG

### 6 HDVRQB& RP P HQW

5 HODMIRQDO0 RGHO

```
6 HDVRQB& RP P HQVMHDVRQBLG FRP P HQVBLG
```

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DOGLEDWH. H V

MUNDURQBLG FRP P HQUBLG`

1 RUP DO) RUP %&1)

7 DEOH' HILQUMRQ &5(\$7(7\$%/(VHDVRQBFRPPHQW VHDVRQBLG ,17(\*(512718// FRPPHQABLG ,17(\*(512718// )25(,\*1.(<VHDVRQBLGUHIHUHQFHV6(\$621 21'(/(7(&\$6&\$'())25(,\*1.(<FRPPHQABLGUHIHUHQFHV&200(17 21'(/(7(&\$6&\$'())35,0\$5<.(<FRPPHQABLGVHDVRQBLG

### 0 RYLHB& RP P HQW

5 HODMIRQDOO RGHO

```
0 RYLHB& RP P HQA<u>P RYLHBIG FRP P HQABIG</u>

) XQFMRQDO HSHQGHQFLHV

1 R GHSHQGHQF

& DQQIGDUM. H\V

^P RYLHBIG FRP P HQABIG`

1 RUP DO) RUP

%&1)

7 DEOH' HLQUMRQ

& 5 ($7(7$% ( P RYLHBFRP P HQAV

P RYLHBIG ,17(* (5 127 18//

FRP P HQABIG ,17(* (5 127 18//

FRP P HQABIG ,17(* (5 127 18//

) 2 5 (,* 1 . ( < P RYLHBIG UHHUHQFHV 0 2 9,(

2 1 ' (/(7( & $6&$' (

) 2 5 (,* 1 . ( < FRP P HQABIG UHHUHQFHV & 2 0 0 (17

2 1 ' (/(7( & $6&$' (

3 5,0 $5 < . ( < FRP P HQABIG P RYLHBIG
```

### 5 HDFWRQ

5 HODWIRQDOO RGHO

5 HDFVIRQ. UHDFVIRQBLG UHDFVIRQBVIVSH FUHDVINGBDW

) XQFWRQDO HSHQGHQFLHV UHDFVIRQBIG ! UHDFVIRQBWSH FUHDWIGBDW

& DQGLGDMM. H\V

MUHDFVIRQBLG`

#### 7 DECH'HILQUWRQ

&5(\$7(7\$%/(UHDFVIRQ UHDFVIRQBIG ,17(\*(512718//\$872B,1&5(0(17 UHDFVIRQBWSH 9\$5&+\$512718// XVHUBIG ,17(\*(512718// FUHDWIGEDW 7,0(67\$03) )25(,\*1.(<XVHUBIG UHIHUHQFHV86(521'(/(7(&\$6&\$'( 35,0\$5<.(<UHDFVIRQBIG

### & RP P HQUB/5 HDF/URQ

5 HODWIRQDOO RGHO

& RP P HQUBS HOFVIRQ FRP P HQUBLG UHDFVIRQBLG

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DOGLGDMM. HVV

MFRP P HOUBLE UHDFULRCELE

```
7DECH'HILQUARQ

&5($7(7$%)(FRPPHQABUHDFVARQ

FRPPHQABLG ,17(*(512718//

UHDFVARCBLG ,17(*(512718//

)25(,*1.(<FRPPHQABLG UHHUHQFHV&200(17

21'(/(7(&$6&$'(

)25(,*1.(<UHDFVARCBLG UHHUHQFHV5($&7,21

21'(/(7(&$6&$'(

35,0$5<.(<FRPPHQABLG UHDFVARCBLG
```

### : DWAKB5 HDFWRQ

#### 5 HODMIRQDOO RGHO

: DVAKB5 HDFVIRQ Z DVAKBLG UHDFVIRQBLG

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DOGLGDVM. H.V

MZ DWAKBLG UHDFVIRCELG`

1 RUP DO) RUP %&1)

7 DECH'HILQUARQ

&5(\$7(7\$%/(ZDWFKBUHDFWLRQ)

:DW#K

5 HODMIRQDO0 RGHO

: DWAK <u>Z DWAKBLG</u> 86 (5 B,' FUHDWAGBDW

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DOGLEDWM. HVV

MZ DVARKBLG`

#### 7 DECH'HILQUMIRQ

&5(\$7(7\$%/(ZDWHK ZDWHKBLG ,17(\*(512718//\$872B,1&5(0(17 XVHUBLG ,17(\*(512718// )25(,\*1.(<XVHUBLGUHIHUHQFHV86(5 21'(/(7(&\$6&\$'( 35,0\$5<.(<ZDWHKBLG

### 6 HDVRQB: DVRK

5 HODWIRQDOO RGHO

6 HDVRCB: DVAK Z DVAKBLG VHDVRCBLG

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DOCELODIM. HIV

MZ DWAKBIG VHDVRQBIG`

1 RUP DO) RUP %&1)

7 DECH'HILQUARQ

&5(\$7(7\$%/(VHDVRQBZDWRK ZDWRKBLG ,17(\*(512718// VHDVRQBLG ,17(\*(512718// )25(,\*1.(<ZDWRKBLGUHHUHQFHV:\$7&+ 21'(/(7(&\$6&\$'())25(,\*1.(<VHDVRQBLGUHHUHQFHV6(\$621) 21'(/(7(&\$6&\$'())35,0\$5<.(<ZDWRKBLGVHDVRQBLG

### (SL/RG+B: DVFK

5 HODWARQDOO RGHO

(SL/RG+B: DWAK <u>Z DWAKBLG HSL/RG+BLG</u>

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DQGLGDMM. HV

MZ DWAKBLG HSL/RGHBLG`

1 RUP DO) RUP %&1)

7 DEOH' HIQUMRQ &5(\$7(7\$%/(HSL/RGHBZDWRK ZDWRKBLG ,17(\*(512718// HSL/RGHBLG ,17(\*(512718// )25(,\*1.(<ZDWRKBLGUHHUHQFHV:\$7&+ 21'(/(7(&\$6&\$'( )25(,\*1.(<HSL/RGHBLGUHHUHQFHV(3,62'( 21'(/(7(&\$6&\$'( 35,0\$5<.(<ZDWRKBLGHSL/RGHBLG

### 0 RYLHB: DW#K

5 HODWIRQDOO RGHO

0 RYLHB: DVAK Z DVAKBLG P RYLHBLG

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DQGLGDVM. H\V

MZ DWAKBIG P RYLHBIG`

1 RUP DO) RUP %&1)

7 DECH'HILQUWRQ

&5(\$7(7\$%)(PRYLHBZDWAK ZDWAKBLG,17(\*(512718// PRYLHBLG,17(\*(512718//) )25(,\*1.(<ZDWAKBLGUHHUHQFHV:\$7&+ 21'(/(7(&\$6&\$'())25(,\*1.(<PRYLHBLGUHHUHQFHV029,( 21'(/(7(&\$6&\$'())35,0\$5<.(<ZDWAKBLGPRYLHBLG

### 6 KRZB: DW#K

5 HODMIRQDOO RGHO

6 KRZ B: DWAK VKRZ BLG Z DWAKBLG

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DOGLEDWM. HIV

MVKRZBLGZDWAKBLG`

1 RUP DO) RUP %&1)

7 DECH'HILQUARQ

&5(\$7(7\$%)(VKRZBZDWFK ZDWFKBLG,17(\*(512718// VKRZBLG,17(\*(512718//))25(,\*1.(<ZDWFKBLGUHHUHQFHV:\$7&+ 21'(/(7(&\$6&\$'())25(,\*1.(<VKRZBLGUHHUHQFHV6+2: 21'(/(7(&\$6&\$'())35,0\$5<.(<ZDWFKBLGVKRZBLG

### 5 D₩

5 HODMIRQDOO RGHO

5 DVM UDVMBLG UDVLQJ FUHDVMGBDW

) XQFWRQDO HSHQGHQFLHV UDMBLG ! UDMQJ FUHDMGBDW

& DOQGLOCDMM. HAV

MUDUABLG`

1 RUP DO) RUP %&1)

7 DECH' HIQUMRQ &5(\$7(7\$%/(UDMH) UDWHBLG ,17(\*(5 12718//\$872B,1&5(0(17 XVHUBLG ,17(\*(5 12718// UDMQJ '28%/( FUHDMGBDW 7,0(67\$03))25(,\*1.(<XVHUBLG UHIHUHQFHV86(5 XVHUBLG 21'(/(7(&\$6&\$'( 35,0\$5<.(<UDWHBLG

### 6 KRZ B5 DV₩

5 HODMIRQDOO RGHO

6 KRZ B5 DVM UDVMBLG VKRZ BLG

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DOGLEDWM. H V

MUDUMBIG VKRZ BIG`

1 RUP DO) RUP %&1)

7 DECH'HILQUARQ

&5(\$7(7\$%)(VKRZBUDWH VKRZBLG ,17(\*(512718// UDWHBLG ,17(\*(512718// )25(,\*1.(<VKRZBLGUHIHUHQFHV6+2:VKRZBLG 21'(/(7(&\$6&\$'( )25(,\*1.(<UDWHBLGUHIHUHQFHV5\$7(UDWHBLG 21'(/(7(&\$6&\$'( 35,0\$5<.(<UDWHBLGVKRZBLG

### 0 RYLHB5 DVH

5 HODWARQDOO RGHO

0 RYLHB5 DWH UDWHBIG P RYLHBIG

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DQGLGDMM. H\V

MUDAMBIG P RYLHBIG` 1 RUP DO) RUP %&1) 7 DEOH' HILQIMIRQ &5 (\$7(7\$%/(P RYLHBUDAM) UDAMBIG ,17(\*(512718// P RYLHBIG ,17(\*(512718// ) 25(,\*1.(< UDAMBIG UHHUHQFHV5\$7(UDAMBIG ) 25(,\*1.(< P RYLHBIG UHHUHQFHV029,(P RYLHBIG 21'(/(7(&\$6&\$'( 35,0\$5<.(< UDAMBIG P RYLHBIG

### 6 HDVRQB5 DVM

5 HODWARQDOO RGHO

6 HDVRQB5 DVM UDVMBIG VHDVRQBIG

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DQGLGDMM. H\V

MUDUABLE VHDVRCBLE

1 RUP DO) RUP %&1)

7DEOH' HILQIMIRQ &5(\$7(7\$%)(VHDVRCBUDM VHDVRQBLG ,17(\*(512718// UDVHBLG ,17(\*(512718// )25(,\*1.(<VHDVRQBLG UHHUHQFHV86(5VHDVRQBLG 21'(/(7(&\$6&\$'( )25(,\*1.(<UDVHBLG UHHUHQFHV5\$7(UDVHBLG 35,0\$5<.(<UDVHBLG VHDVRQBLG

(SL/RGHB5 DVH

5 HODWARQDOO RGHO

```
(SL/RGHB5 DVM UDVMBLG HSL/RGHBLG
```

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DOCILGOMM. HIV

MUDUMBLG HSL/RGHBLG`

1 RUP DO) RUP %&1)

7 DEOH' HIQUMRQ &5(\$7(7\$%/(HSL/RGHBUDUM HSL/RGHBIG ,17(\*(512718// UDUMBIG ,17(\*(512718// )25(,\*1.(<HSL/RGHBIG UHHUHQFHV86(5HSL/RGHBIG 21'(/(7(&\$6&\$'( )25(,\*1.(<UDUMBIG UHHUHQFHV5\$7(UDUMBIG 35,0\$5<.(<UDUMBIG HSL/RGHBIG

### 8 VHU

#### 5 HODMIRQDOO RGHO

### 8 VH<u>UXVHUBIG</u> XVHUBOOPH XVHUBWSH XVHUBHPDIO XVHUBSDVVZ RUG XVHUBIULWOOPH XVHUBODWOODPH DJH IPDJHBXLOFUHDWIGBDWXSGDWIGBDW

) XQFV1RQDO HSHQGHQFLHV

XVHUBLG ! XVHUBQDP H XVHUBWSH XVHUBHP DLOXVHUBSDWZ RUG XVHUBILUWQDP H XVHUBQDWQDP H DJ H LP DJ HBXLOFUHDWHGBDWXSGDWHGBDW

& DOQGLOCDMM. H\V

MXVHUBLG`

1 RUP DO) RUP %&1)

7 DEOH' HIQUMRQ &5(\$7(7\$%/(XVHU

XVHUBIG ,17(\*(5 12718//\$872B,1&5(0(17 XVHUBQDP H 9\$5&+\$5 12718//81,48( XVHUBHP DLO 9\$5&+\$5 12718//81,48( XVHUBSDWZ RUG 9\$5&+\$5 12718//81,48( 9\$5&+\$5 12718//&+(&. XVHUBWSH XVHUBWSH, 1 µ\$ GP LQ[[µ] RUP DQ] XVHUBILUWOODPH 9\$5&+\$5 XVHUBODWODPH 9\$5&+\$5 DIH ,17(\*(5 LP DJHBXLO 9\$5&+\$5 7,0 (67\$03 FUHDWAGBDW XSQDMAGBDW 7,0 (67\$03 35,0 \$5 < . ( < XVHUBLG

### ) UHQGVKIS

5 HODWARQDOO RGHO

) UHQGVKIS<u>IIUMBXVHUBIG\_VHFRQ@BXVHUBIG</u>IUHQGVKISBWDWAV

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DOGLEDWM. HVV

MILWBXVHUBIG VHFRQGBXVHUBIG`

1 RUP DO) RUP %&1)

7 DECH'HILQUARQ

&5(\$7(7\$%)(IULHQGMKIS IULWBXVHUBIG ,17(\*(512718// VHFRQGBXVHUBIG ,17(\*(512718// IULHQGMKISBWDMAV 675,1\*12718//&+(&. IULHQGMKISBWDMAV,1 µ3(1',1\* µ\$33529('¶µ5(-(&7('¶))25(,\*1.(<IULWBXVHUBIG UHIHUHQFHV86(5XVHUBIG 21'(/(7(&\$6&\$'())25(,\*1.(<VHFRQGBXVHUBIG UHIHUHQFHV86(5XVHUBIG 21'(/(7(&\$6&\$'())25(,\*1.(<VHFRQGBXVHUBIG UHIHUHQFHV86(5XVHUBIG 21'(/(7(&\$6&\$'())35,0\$5<.(<IULWBXVHUBIG VHFRQGBXVHUBIG

### 6 XEVFUEH

5 HODWARQDOO RGHO

#### 6 XEVFUEH VKRZ BLG XVHUBLG

) XQFWRQDO HSHQGHQFLHV 1 R GHSHQGHQF\

& DQGLGDVM. HV

MVKRZ BLG XVHUBLG`

1 RUP DO) RUP %&1)

7 DECH'HILQUMIRQ

&5(\$7(7\$% (VXEVFUEH VKRZ BLG ,17(\*(512718// XVHUBLG ,17(\*(512718// IULHQGVKLSBVUDVXV ,17(\*(512718// )25(,\*1.(<VKRZ BLG UHHUHQFHV6+2: VKRZ BLG 21'(/(7(&\$6&\$'( )25(,\*1.(<XVHUBLG UHHUHQFHV86(5XVHUBLG 21'(/(7(&\$6&\$'( 35,0\$5<.(<XVHUBLG VKRZ BLG

### 1 RVMFDWRQ

5 HODWARQDOO RGHO

1 RMMFDMRQ. <u>QRVMFDMRQBIG</u> 86 (5 B, WDMXV FUHDMRCBDWVHHCBDWMM[WOODN

) XQFWRQDO HSHQGHQFLHV

& DOGLGDMM. HIV

MORVINFDWROBLG `

7DEOH'HIQUMRQ &5(\$7(7\$%)(QRMUFDMRQ QRMUFDMRQBLG,17(\*(512718//\$872B,1&5(0(17 XVHUBLG ,17(\*(512718// VMDWAV ,17(\*(5 FUHDMGBDW 7,0(67\$03 VH-QBDW 7,0(67\$03 VH\_W 9\$5&+\$5 QQN 9\$5&+\$5 )25(,\*1.(<XVHUBLG UHHUHQFHV86(5XVHUBLG 21'(/(7(&\$6&\$'( 35,0\$5<.(<QRMUFDMRQBLG

# ) XQFVIRQDO HSHQQHQFILHV DQG 1 RUP DQJ DVIRQ RI 7 DECHV

) XQFVIRQDOQHSHQQHQFILHV DQG QRUP DOIRUP V DUH QHIQHG IQ 5 HOMIRQ 6 FKHP DV SDUWRI VKUV UHSRUW\$ OQUHOMIRQV DUH FKHFNHG Z KHWAHUWAH, DUH IQ %R\ FH & ROG QRUP DOIRUP, WUV FRQFOXQHG VKDWQHFRP SRVUVRQUV QRVQHFHVVDU

# ) XQFVBRQDO& RP SRQHQW

### 8 VH & DVHV 6 FHQDURV

#### \* XHW

- \* XHWFDQ 00,W79 VHUHV DQG P RYLHV Z WKX EDMF ILOMUV VXFK DV J HQUH 7 UDFN% UDWQJ SRSXOUW HAT
- " \* XHWYFDQ UHMHZ FDWMP DJHV DQG WIDLIGHUV RI WYVHUHV DQG P RYLHV WKURXJK WKHU VKRZ FDVH SDJ HV
- " \* XHWFDQP DNH VHDUFK VSHFULF 79 6 HUHV DQG P RYLHV
- " \* XHWIFDQ VHH XSFRP IQJ HSL/RGHV RI 79 6 HULHV DQG P RYLHV VKURXJK VKH & DOHQODU

#### 8 VHU

\$GPLQ

- " 8 VHUFDQ OBJLQ VIR VI WHP Z LIVIR HP DLODQG SDWZ RLG
- " 8 VHUEDO P DUN HSIVRGHV DV 7 DVRKHG
- " 8 VHUFDQ VXEVFUEH VR VSHFLLE 79 6 HUHV
- " 8 VHUFDQJHWQRWUHGZKHQWXHQHZHSU/RGHRIVXEVFUEHGW/VHUHVDUUYHV
- " 8 VHUFDQ P DNH VHDUFK VSHFILLF 79 6 HUHV DQG P RYLHV
- " 8 VHUFDQ FRP P HQVRQ 79 VHUHV VSHFILIF HSIVRGHV VHDVRQV DQG P RYLHV
- 8 VHUFDQ FRP P HQWRQ RWKHUXVHU/[[DFWRQV WKHUFRP P HQW HWF
- 8 VHUFDQ UDWH 79 VHUHV VSHFLIE HSL/RGHV VHDVRQV DQG P RYLHV
- 8 VHUFDQ GURS UHDFVURQ HP RIVWR RVKHUXVHU/[[DFVURQ/
- 8 VHUFDQ VHQG I UHQGVKIS UHTXHWV VR RVKHUXVHUV
- 8 VHUFDQ DFFHSWRULJ QRUH I UHQGVKLS UHTXHWW
- 8 VHUFDQ QUVV79 VHUHV DQG P RYLHV Z LVK DGYDQFHG I LQMUV VXFK DV,0' % UDVLQJ OPQJ VK ODQJXDJH RUULQFRXQWUR WAHPRYLH
- 8 VHUFDQ UHMLHZ FOWMP DJ HV DQG WIDLIOHUV RI WY VHULHV DQG P RYLHV WKURXJK WKHLU VKRZ FDVH SDJHV
- " 8 VHUFDQ FKHFN RXVINIH XSFRP LQJ W VHULHV[[HSL/RCHV E\ VDNH D (BRN DV9& DOBQCDU)

- "

- 8 VHUFDQ DYRLG VSRLIDIUV E\ FRQI LJ XUQJ VKH SHU/RQDO/HWKQJ V

- 8 VHUFDQ J HWHP DLOORVIMEDVIRQV I RUWKHLUDFVIRQV DQG VXEVFUISVIRQV
- ,,
- 8 VHUFDQ WOUWGVFXWRQ DERXW79 VHUHV DQG P RYHV

" \$ GP 1Q FDQ OBJ 1Q VIR VI WHP Z LINK HP DIODOG SDWZ RLG

\$ OP LO FDO EDO XVHUY ILRP WAY SOOWRUP

- " \$ OP LQ FDQ Z DLQ XVHU/ EHFDXVH RI WAHLUIODU J HG DFWRQV
- " \$ GP LQ FDQ GHOMM FRP P HQW
- " \$ OP LQ FDQ P ROLL FRP P HOW DFFRUELQJ WR FRP P XOUW UXOW
- " \$ GP LQ FDQ VOU 79 VHUEN P RYLEN DV ( GURUE V & KRIEH
- " \$ GP LQ FDQ DOG VSHFILLF P RYLHV 79 VHULHV
- " \$ OP LQ FDQ P ROLL WITH LQI RUP DWARQ UHDWHG WILP RYLHV DQG 79 VHUHV
- " \$ GP LQ FDQ GHOMM WAN RFFXULHQFH RI VSHFILLF P RYLEV DQG 79 VHULEV
- " \$ OP LQ FDQ J LYH DQG VOINH VRP H RI VIKH DOP LQLVVUDVLYH UU KW VIK RVIKHUXVHUV

### TRACKBY.ME USE CASE DIAGRAM

November 20, 2017



### \$ ORUMEP V

Z HJ KWG DYHUDJ H« EXWUVL/ ERUQJ «

#### & RQMUDIQW

+ DYH XVHUDFVXDOO P DUNHGVXDWP RYLH DV Z DVFKHG EHIRUH UDVH UV

+ RZ P DQ, 3EDG DQG3JRRG UHDFVIRQV KH J RVRQ KLV UDVH DFVIRQ' \$ UH RWAHUXVHUV DEVADOO GLVONQJ RUONQJ KUV UDVAV VR P RYLH''' R VAHV ILQG IVVKHOSIXORU

QRW

+ RZ ROG LV WH DFFRXQW VLQFH LW FUHDWRQ GDW

+ RZ DEVLYH LV WALH XVHU FKHEN WALH VRVD/OFRPPHQW/ZDWAKHGPRYLHV HWA

VKH NAWWSDPPIQJZWA WOULUDWQJV'2ULVKH DERWARDWILYHV WOUWROMMDOOD HYHU WKIQJ"

+ RZ P DQ, IROBEZ HUV IULIQGV KH J RW, I KH LV LQ OXHQUDOSHU/RQ, Z H P XOUSO KLV UDVLQ I Z LVMK VRP H SUHGHILQHG I DFVRU

\$1VMUFRUIHEVØFDØX00MQJDQGFRPSXMQJWAHRYHUD00UDMQJRIWAHVSHFULEPRYLHHSLVRGH VHOVRQRU79 6 HUHV DV D Z KROH Z H MP XODICHRXVO FKDQJH WAH UDMQJ BYDOXH RI LW

'DND/6/WKFVXUHV 'DND/7/SHV

: HZLOOXVHEXLONQ GOND WSHV RI0\64/ VXFK DV

- " 7(;7
- " '\$7(
- <sup>"</sup> 9\$5&+\$5
- ",17(\*(5
- " 7,0 (67\$03
- " '28%/(

# 8 VHU, QUMUDFH' HMJ Q DQG & RUUHVSRQQQJ 64 / 6 VDWMP HQW

/ RJIQ

	Login	
Email: Password: Login		

, QSXW # HP DLO # SDWZ RLG 3 URFHVV 8 VHUHQMUV KHUHP DLODQG SDWZ RLG VR HQMUVRH VI VMP

### 6 DYH 8 VHU7 R' DMOZEDVH KDVKHG SDV/Z RUG Z LOOZEH SXWLQMR GE ,16 (57,172 XVHU HP DLOXVHUQDP H ILLUWODP H ODWODDP H SDV/Z RUG ELLUMRGDVH 9\$/8 (6 # HP DLO # XVHUQDP H # ILLUWODDP H # ODWODDP H # SDV/Z RUG # ELLUMRGDH

#### XVHQOPH # XVHQOPH

& KHFN II HP DLODQG XVHUQDP H H[ LVW 6(/(& 7 HP DLOXVHUQDP H) 520 XVHU: +(5( HP DLO # HP DLO25

#### 64/6WDMPHQW

#### RUGHUNR UHJ LAMUNKH VA VMP

5 HULMANU

, QSXW # HP DLO# SDWZ RLG # XVHLQDP H # ILLWQDP H # ODWQDP H # ELLINKGDWM 3 URFHVV 8 VHUVSHFLL\ KHUHP DLOVHOHFVMG SDWZ RLG VHOHFVMG XVHUQDP H KHUILLWWQDP H ODWQDP H DQG ELLINKGDWH VR UHU LVMUVKH V\ WMP \$ O'R XVHUVKRXOG DFFHSWKVHUDJ UHP HQVIQ

	Register	
Email Usern First I Last N Birtho Passy	I:	

## (SL/RGH



,QSXW # HSL/RGHBLG # VHD/RQBLG # XVHUBLG # UDMQJ

3 URFHVV 7 KH HSL/RGH VFUHHQ KDV IRXUP DQ IHDWAUHV ) LUWOV Z KHQ WAH HSL/RGH VFUHHQ LV RSHQHG LWQL/SOD V VXP P DUI RI HSL/RGH Z LWA QDP H RI WAH HSL/RGH \$ OR XVHUFDQ VHH QDWH RI UHODVH RI WAH HSL/RGH 6 HFRQQOD XVHUFDQ VHH Z KHWAHUVKH Z DWAKHG RUQD HG HSL/RGH 8 VHUFDQ P DUN DV Z DWAKHG IL VKH Z DWAK WALV HSL/RGH 7 KLLQOD XVHUFDQ UHP DUN Z KHWAHUVKH QN HG HSL/RGH RUQRWE \ SUHVAQI HP RIVLEXWAQV ) RXUMAOD XVHUFDQ VHH FDW/DQG FUHZ FUHQIW RI WAH HSL/RGH ) RXUMAOD XVHUFDQZ UWH DQG HQWFRP P HQW RQ HSL/RGH %HMQHV XVHUFDQ VHH UHSOD DQG QDNH FRP P HQW E \ RWAHUXVHUV \$ O'R FRP P HQW FDQ EH ILQMUHG E \ FRXQ/WRI UHSO RUQDH 64/6WDMPHQW

)HMFK(SLVRGH,QIR

6(/(&7)520 HSL/RGH: +(5( HSL/RGHBLG # HSL/RGHBLG

)HMFK&RPPHQW

6(/(&7 FRP P HQW) 520 FRP P HQW

,11(5-2,1 HSL/RG-HBFRP P HQ//21 HSL/RG-HBFRP P HQ//HSL/RG-HBLG # HSL/RG-HBLG

,11(5-2,1 SXEOFBXVHU21 FRP P HQVXVHUBLG SXEOFBXVHUXVHUBLG

#### ) HMFK & RP P HQW5 HDFW/RQV

6(/(&7 UHDFWIRQ FRP P HQUBUHDFWIRQ FRP P HQUBUG)520 UHDFWIRQ

- ,11(5-2,1 FRP P HQABUHDFVARQ
  - 2 1 FRP P HOUBUHDFUIRQ FRP P HOUBUG

 $,1 \quad 6(/(\&7 \text{ FRP P HQABAG}) 520 \text{ FRP P HQW})$ 

,11(5-2,1 HSL/RGHBFRPPHQV/21

HSLVRG-BFRP P HQWHSLVRG-BLG # HSLVRG-BLG

\* 5283 % FRP P HQUBUHDFVURQ FRP P HQUBUG UHDFVURQ UHDFVURQBWSH

) HMFK & RP P HQW5 HS0LHV

6(/(&7 FRP P HQW) 520 FRP P HQW

,11(5-2,1 SXEOFBXVHU21 FRPPHQVXVHUBIG SXEOFBXVHUXVHUBIG

: + (5 (SDUHQABLG,1

6(/(&7 FRP P HQABAG) 520 FRP P HQW

- ,11 (5 2,1 HSIVRG-HBFRP P HQ/12 1 HSIVRG-HBFRP P HQ/1+HSIVRG-HBIG
  - # HSL/RGHBLG

\* 5283 % < SDUHQUBLG

& UHDWH1HZ & RPPHQW

# XXLG 8 QTXH LG J HQHUDVHG E\ EDFN HQG FRGH

,16(57,172 FRPPHQWFRPPHQWBIGERG, XVHUBIG9\$/8(6 # XXIG # ERG, # XVHUBIG ,16(57,172 HSU/RCHBERPPHQWFRPPHQWBIGHSU/RCHBIG9\$/8(6 # XXIG # HSU/RCHBIG

)HMF/K,V:DMF/KHG

6(/(&7 & 2817) 520 ZDWFK

,11(5-2,1 HSL/RGHBZDWFK21

HSL/RGHBZDWAKHSL/RGHBLG # HSL/RGHBLG\$1'

: +(5(

Z DWARK XVHUBLG # XVHUBLG

)HM#7K,V5DM#G

6(/(&7 UDMQ))520 UDMM

,11(5-2,1 HSL/RGHBUDWH21

HSL/RCHBUDWHHSL/RCHBIG #HSL/RCHBIG\$1' UDWHXVHUBIG #XVHUBIG &DWW

6(/(&7 FDWV)520 DFW

,11(5-2,1 HSL/RCHBDFW/21 DFWDFVB/LG HSL/RCHBDFWDFVB/LG

,11(5-2,1 FDWFDWB/LG DFWFDWB/LG

5 DMM (SL/RGH, I, WL/Q¶/WLDMAG EHIRUH # XXLG 8 QLTXH LG J HQHUDMAG E\ EDFNHQG VFULSW

,16(57,172 UDMQ) UDMQ) BIG XVHUBIG UDMQ) 9\$/8(6 # XXIG # XVHUBIG # UDMQ) ,16(57,172 HSI/RG-BUDMQ) UDMQ) BIG HSI/RG-BIG 9\$/8(6 # XXIG # HSI/RG-BIG

5 DWH (SL/RGH , I, WL/ DOUHDG \ UDWHG

83'\$7(UDMQJ6(7UDMQJ # UDMQJ

: +(5(UDMQJBLG,1

6(/(&7 UDMQ)BLG)520 HSL/RGHBUDMH: +(5(HSL/RGHBLG #HSL/RGHBLG \$1' XVHUBLG # XVHUBLG

## 6 HDVRQ



, QSXW # VHDVRQBIG # VKRZBIG # XVHUBIG # FRPPHQABERG, 3 URFHV 7 KH VHDVRQVFUHHQKDV IRXUPDQIHDVAUHV) LUVAO Z KHQVAH VHDVRQVFUHHQLV RSHQHG LVALVSOD, V DOORI VAH HSLVRGHV LQVHOPFVAG VHDVRQDQG VAHLUGHVDLOV \$ OVR XVHUFDQ VHHZ KHAAHUVKHZDVAAKHG RUODNHGVHDVRQ 8 VHUFDQPDUNDVZDVAAKHG LLVKHZDVAAK VALV VHDVRQ 6 HFRQGO XVHUFDQ UHP DUNZ KHMAHUVKH ODNHG VHDVRQ RUCRVIEL SUHVVQJ ODNH EXWARQY 7 KILLED XVHUFDQ VHH FDWDQG FUHZ FUHQWY RI VACH VHDVRQ ) RXUMAO XVHUFDQZ ULAH DQG HQWFRP P HQW RQ VHDVRQ %HMGHV XVHUFDQ VHH UHSO DQG (ONH FRP P HQW E\ RWHU XVHU/ \$ O'R FRP P HOW FDQ EH ILOMUHG E\ FRXQVRI UHSO RUONH

64/6WDMPHQW

#### ) HMFK 6 HDVRQ.QIR

6(/(&7)520 VHDVRQ: +(5(VHDVRQBLG # VHDVRQBLG

)HM∜K&RPPHQW

- 6(/(&7 FRP P HQW)520 FRP P HQW)
  - ,11(5-2,1 VHDVRQBFRP PHQV21 VHDVRQBFRP PHQVWHDVRQBLG # VHDVRQBLG ,11(5-2,1 SXEOFBXVHU21 FRP P HQVKVHUBLG SXEOFBXVHUXVHUBLG
- ) HMFK & RP P HQW5 HDFWRQV

6(/(&7 UHDFWRQ FRPPHQABUHDFWRQFRPPHQABAG)520 UHDFWRQ

- ,11(5-2,1 FRP P HQABUHDFVARQ
  - 2 1 FRP P HOUBUHDEVURQ FRP P HOUBUG

 $,1 \quad 6(/(\&7 \text{ FRP P HQABAG}) 520 \text{ FRP P HQW})$ 

,11(5-2,1 VHDVRQBFRP P HQV21

VHDVRQBFRP P HQVWHDVRQBIG # VHDVRQBIG

\* 5283 % FRP P HQUBUHDFVIRQ FRP P HQUBIG UHDFVIRQ UHDFVIRQ BWSH

) HMFK & RP P HQW5 HSOLHV

6(/(&7 FRP P HQW) 520 FRP P HQW

,11(5-2,1 SXEOFBXVHU21 FRP P HQVKVHUBLG SXEOFBXVHUXVHUBLG

: + (5 ( SDUHQABLG, 1

- 6(/(&7 FRP P HQABAG)520 FRP P HQW)
  - ,11 (5 2,1 VHDVRQBFRP P HQV/2 1 VHDVRQBFRP P HQV/WHDVRQBLG

  - - # VHDVRQBLG
- \* 5283 % < SDUHQABIG

& UHDM/1 HZ & RP P HQW

# XXLG 8 QTXH LG J HQHUDANG E\ EDFNHQG FRGH

,16(57,172 FRP P HQWFRP P HQWBIG ERG, XVHUBLG 9\$/8(6 # XXLG # ERG, # XVHUBLG

,16(57,172 VHDVRCBFRPPHQWFRPPHQWBRCBLG9\$/8(6 # XXLG # VHDVRCBLG

) HMFK,V: DMFKHG

6(/(&7 & 2817) 520 ZDWRK

,11(5-2,1 VHDVRQBZDWRK21

VHDVRQBZ DWFK VHDVRQBLG # VHDVRQBLG

: + (5 (ZDNARK XVHUBLG # XVHUBLG

)HM7/K,V5DM4/G

6(/(&7 UDMQ))520 UDMH

,11(5-2,1 VHDVRCBUDWH21 VHDVRCBUDWHVHDVRCBLG # VHDVRCBLG\$1' UDWHXVHUBLG # XVHUBLG

&DWW

6(/(&7 FDWW)520 DFW

,11(5-2,1 VHDVRQBDFW/21 DFWDFVBLG VHDVRQBDFVDFVBLG

,11(5-2,1 FDW2/1 FDWFDWBLG DFWFDWBLG

5 DMA 6 HDVRQ, I, WL/QTWLDMAG EH RUH # XXLG 8 QLTXH LG J HQHUDMAG E\ EDFNHQG VFULSW

,16(57,172 UDMQJ UDMQJ BIG XVHUBIG UDMQJ 9\$/8(6 # XXIG # XVHUBIG # UDMQJ ,16(57,172 VHDVRQBUDMQJ UDMQJ BIG VHDVRQBIG 9\$/8(6 # XXIG # VHDVRQBIG

- 5 DVM 6 HDVRQ, I, WLV DOUHDG \ UDVMG
- 83'\$7(UDMQ)6(7UDMQ)#UDMQ) : +(5(UDMQ)BLG,1 6(/(&7UDMQ)BLG)520VHDVRQBUDMH: +(5(VHDVRQBLG #VHDVRQBLG \$1'XVHUBLG #XVHUBLG

- )HMFK(SLVRGHV
- 6(/(&7)520HSL/RGH
  - : +(5( VHDVRQBLG # VHDVRQBLG

) HM7K (SL/RGHV,V5DM4G

- 6(/(&7UDM2QJ)520UDWH
  - /()7-2,1 HSL/RGHBUDWH21
    - HSL/RG-BUDVM HSL/RG-BLG,1
      - 6(/(&7)520 HSLVRGH: +(5(VHDVRQBLG # VHDVRQBLG \$1'
    - UDVH XVHUBLG # XVHUBLG

\*5283 % < HSL\/RGHBLG

)HMFK(SLVRGHV,V:DMFKHG

6(/(&7 & 2817) 520 ZDWRK

,11(5-2,1 HSL/RGHBZDWFK21

#### HSL/RGHBUDVM HSL/RGHBLG,1

- 6(/(&7)520 HSL/RGH: +(5(VHD/RCBLG # VHD/RCBLG\$1'
- : +(5(ZDWRKXVHUBLG #XVHUBLG
- \* 5283 % < HSL/RGHBLG

### 6 KRZ



,QSXW # VKRZ BLG # XVHUBLG # UDWH # ERG.

3 URFHVV 7 KH VKRZ VFUHQ KDV WUHH P DQ IHDWUHV ) LUWO Z KHQ WUH VKRZ VFUHQ LV RSHQHG LWQUSOD V GHNDLOY RI WUH VKRZ LQFOXGHV FUHZ FUHQWV QXP EHURI VHDVRQV VXEVFULEH XVHULDMQJ V DQG SORWWXP P DUI \$ O'R XVHUFDQ VHH Z KHWUHUVKH Z DWAKHG RUOD HG VKRZ 8 VHU FDQ P DUN DV Z DWAKHG LL VKH Z DWAK WUU VKRZ 6 HFRQGD XVHUFDQ QLVSOD DOORI WUH HSL/RCHV RI WUH VKRZ Z LWU WUHUXVHUUDWQJ V 7 KLLQO XVHUFDQ Z UWH DQG HQWFRP P HQW RQ VKRZ %HMQHV XVHUFDQ VHH UHSO DQG OD H FRP P HQW E\ RWUHUXVHUV \$ O'R FRP P HQW FDQ EH ILOMUHG E\ FRXQVRI UHSO RUOD H

#### 64/6WDMHPHQW

)HMFK6KRZ,QIR

6(/(&7)520 VKRZ: +(5( VKRZ BLG # VKRZ BLG

#### ) HMFK & RP P HQW

6(/(&7 FRP P HQW) 520 FRP P HQW

,11(5-2,1 SXEOFBXVHU21 FRP P HQVXVHUBIG SXEOFBXVHUXVHUBIG

,11(5-2,1 VKRZ BFRP P HQV2 1 VKRZ BFRP P HQVVKRZ BLG # VKRZ BLG

#### ) HMFK & RP P HQW5 HDFWRQV

6(/(&7 UHDFWIRQ FRPPHQABUHDFWIRQFRPPHQABLG)520 UHDFWIRQ

- ,11(5-2,1 FRP P HQABUHDFWARQ
  - 2.1 FRP P HQUBUHDFUURQ FRP P HQUBUG

,1 6(/(&7 FRPPHQABAG)520 FRPPHQW

#### ,11(5-2,1 VKRZBFRPPHQV21

VKRZ BFRP P HQVWKRZ BLG # VKRZ BLG

\* 5283 % FRP P HOUBUHDEVURQ FRP P HOUBUG UHDEVURQ UHDEVURQBWSH

#### ) HMFK & RP P HQW5 HS0LHV

6(/(&7 FRPPHQW) 520 FRPPHQW)

,11(5-2,1 SXEOFBXVHU21 FRPPHQVKVHUBLG SXEOFBXVHUXVHUBLG

: + (5 ( SDUHQABLG, 1

6(/(&7 FRPPHQABLG)520 FRPPHQW

,11(5-2,1 VKRZ BFRP P HQV/21 VKRZ BFRP P HQV/VHDVRQBIG # VKRZ BIG

\* 5283 % SDUHQUBIG

#### & UHDMH1 HZ & RP P HQW

# XXLG 8 QTXH LG J HQHUDWHG E\ EDFN HQG FRGH

,16(57,172 FRPPHQWFRPPHQWBRCPHQWBRCGERG, XVHUBLG9\$/8(6 # XXLG # ERG, # XVHUBLG ,16(57,172 VKRZBFRPPHQWFRPPHQWBRCPHQWBRCVKRZBLG9\$/8(6 # XXLG # VKRZBLG )HM#K,V:DM#KHG

6(/(&7&2817)520ZDWFK ,11(5-2,1VKRZBZDWFK21 VKRZBZDWFKVKRZBLG #VKRZBLG : +(5(ZDWFKXVHUBLG #XVHUBLG

) HM#7K, V5 DM#7G

6(/(&7UDMQJ)520UDMA ,11(5-2,1VKRZBUDMA21 VKRZBUDMAVKRZBLG #VHDVRQBLG\$1' UDMAXVHUBLG #XVHUBLG

#### &DWW

6(/(&7FDWW)520DFW ,11(5-2,1VKRZBDFV/21DFV/DFV/B/LG VKRZBDFV/DFV/B/LG ,11(5-2,1FDW/21FDW/FDW/B/LG DFV/FDW/B/LG

#### 5 DMH 6 KRZ, I, WL/QTWLDWHG EHIRUH

# XXLG 8 QTXH LG J HQHUDWHG E\ EDFN HQG VFULSW

,16(57,172 UDMQJ UDMQJ BLG XVHUBLG UDMQJ 9\$/8(6 # XXLG # XVHUBLG # UDMQJ ,16(57,172 VKRZ BUDMQJ UDMQJ BLG VKRZ BLG 9\$/8(6 # XXLG # VKRZ BLG

)HMFK,V6XEVFULEHG

6(/(&7)520 VXEVFUEH: +(5(XVHUBLG # XVHUBLG \$1' VKRZBLG # VKRZBLG

6XEVFULEH

,16(57,172 VXEVFUEH XVHUBIG VKRZBIG 9\$/8(6 # XVHUBIG # VKRZBIG

8 QVXEVFUEH

'(/(7()520 VXEVFUEH: +(5( XVHUBLG # XVHUBLG\$1' VKRZBLG # VKRZBLG

5 DMA6KRZ ,I,WL/DQUHDG,UDMAG 83'\$7(UDMQ)6(7UDMQ) #UDMQ) : +(5(UDMQ)BLG,1 6(/(&7UDMQ)BLG)520VKRZBUDMA: +(5(VKRZBLG #VKRZBLG\$1' XVHUBLG #XVHUBLG

- ) HMFK 6 HDVRQV
- 6(/(&7)520 VHDVRQ : +(5(VKRZBLG # VKRZBLG

) HM7K 6 HDVRQ, V 5 DMAG 6(/(&7 UDW2J) 5 2 0 UDWA /()7 - 2,1 VHDVRCBUDWA 2 1 VHDVRCBUDWA HSLVRCHBLG,1 6(/(&,7)520 VHDVRQ: +(5(VKRZBLG # VKRZBLG \$1' UDWHXVHUBLG # XVHUBLG

\* 5283 % VHDVRQBLG

)HMFK6HDVRQ,V∶DMFKHG

- 6(/(&7 & 2817) 520 ZDWFK
  - ,11(5-2,1 VHDVRQBZDWRK21

VHDVRQBUDVMHSLVRGHBLG,1

- 6(/(&7)520 VHDVRQ: +(5( VKRZBLG # VKRZBLG \$1'
- : + (5 (ZDNAK XVHUBLG # XVHUBLG

\* 5283 % < HSL/RGHBLG

### 0 RYLH

	•		<b>↓</b> U	
<b>Star Wars: The Last J</b> Three decades after the Em threat arises in the militant F defector Finn and spare part caught up in the Resistance Luke Skywalker.	Pedi pire's defeat, a new first Order. Stormtroo ts scavenger Rey are 's search for the mis Mark As Watched	Directe Directe J.J. Abra Bing Writter Lawrenc Michael	S ed by ams n by e Kasdan, J.J. Abrams, Arndt, George Lucas ate ☆ 2015	
Cast Harrison Ford Han Solo Han Solo	Carrie Fisher	Adam Driver	Daisy Ridley	
Show All Cast				
Comments 38 Comments Lie Sort By				
Dennis				
U Great movie!!! Great cast!!! Reply @ 3 ♥ 0 ♥ 0 ♥ 0 ♥ 0 ♥ View All 5 Replies ✓	0			
Kelly I love this movie Reply	0			
Show More Comments				

### ,QSXW # P RYLHBIG # XVHUBIG # ERG, # UDVM

3 URFHVV 7 KH P RYLH VFUHHQ KDV VIZIR P DIQ I HDWAUHV) LUWOV Z KHQ WAH P RYLH VFUHHQ LV RSHQHG LWQLVSOD, V CHWIDLOV RI WAH P RYLH LQFOXCH-V FUHZ FUHQLW XVHUUDWQJ V CDWH RI UHOHDVH DQG SORVWXP P DUI \$ O'R XVHUFDQ VHH Z KHWAHUVKH Z DWAKHG RUUDWAG P RYLH 8 VHUFDQ P DUN DV Z DWAKHG LL VKH Z DWAK WALV P RYLH 6 HFRQGOD XVHUFDQ Z UWM DQG HQLVFRP P HQW RQ P RYLH %HMQHV XVHUFDQ VHH UHSOD DQG OLNH FRP P HQW E\ RWAHUXVHUV \$ O'R FRP P HQW FDQ EH ILOMUHG E\ FRXQWRI UHSOD RUODNH 64/6WDMPHQW

)HMFK6KRZ,QIR

6(/(&7)520 PRYLH: +(5( PRYLH BLG # PRYLH BLG

)HM∜K&RPPHQW

6(/(&7 FRP P HQW) 520 FRP P HQW

,11(5-2,1 SXEOFBXVHU21 FRP P HQVXVHUBLG SXEOFBXVHUXVHUBLG

,11 (5-2,1 P RYLH BFRP P HQV/21 P RYLH BFRP P HQV//KRZ BLG # P RYLH BLG

#### ) HMFK & RP P HQW5 HDFWLRQV

6(/(&7 UHDFWIRQ FRPPHQABUHDFWIRQFRPPHQABAG)520 UHDFWIRQ

#### ,11(5-2,1 FRP PHQMBUHDFMBRQ

2 1 FRP P HQUBUHDFVURQ FRP P HQUBUG

 $,1 \quad 6(/(\&7 \text{ FRP P HQABAG}) 520 \text{ FRP P HQW})$ 

,11(5-2,1 P RYLHBFRP P HQV/21

P RYLHBFRP P HQ/WKRZ BLG # P RYLHBLG

\* 5283 % FRP P HQUBUHDFVIRQ FRP P HQUBUG UHDFVIRQ UHDFVIRQ BWSH

#### ) HMFK & RP P HQW5 HS00HV

6(/(&7 FRP P HQW) 520 FRP P HQW)

,11 (5-2,1 SXEOFBXVHU21 FRP P HQVKVHUBLG SXEOFBXVHUXVHUBLG

: + (5 ( SDUHQABLG, 1

6(/(&7 FRP P HQABAG) 520 FRP P HQW

,11 (5 - 2,1 PRYLHBERPPHQV21 PRYLHBERPPHQVPRYLHBLG # PRYLHBLG

\* 5283 % < SDUHQUBLG

& UHDM-1 HZ & RP P HQW

# XXLG 8 QTXH LG J HQHUDWHG E\ EDFN HQG FRQH

,16(57,172 FRPPHQWFRPPHQWBRGERG, XVHUBLG9\$/8(6 # XXLG # ERG, # XVHUBLG ,16(57,172 PRYLHBFRPPHQWFRPPHQWBRGPRYLHBLG9\$/8(6 # XXLG # PRYLHBLG

)HMF/K,V:DMF/KHG

6(/(&7 &2817)520 ZDWFK

,11(5-2,1 PRYLHBZDWFK21

- PRYLHBZDWARK VKRZBLG # PRYLHBLG
- : + (5 (ZDWRK XVHUBLG # XVHUBLG

)HM#K,V5DMHG

6(/(&7 UDMQ))520 UDWM

,11(5-2,1 PRYLHBUDWH21 PRYLHBUDWHPRYLHBIG # PRYLHBIG\$1' UDWHXVHUBIG # XVHUBIG &DWW

6(/(&7 FDWV)520 DFW

,11(5-2,1 PRYLHBDFV/21 DFWDFV/BLG PRYLHBDFWDFV/BLG

,11(5-2,1 FDW121 FDW1FDW18JG DFWFDW18JG

5 DWM 0 RYLH, I, WL/QT/WLDWMG EHIRUH # XXLG 8 QLTXH LG J HQHUDWMG E\ EDFNHQG VFULSW

,16(57,172 UDMQ) UDMQ) BIG XVHUBIG UDMQ) 9 $\frac{8}{8}$ (6 # XXIG # XVHUBIG # UDMQ) ,16(57,172 PRYHBUDMQ) UDMQ) BIG PRYHBIG 9 $\frac{8}{8}$ (6 # XXIG # PRYHBIG

5 DWH 0 RYLH , I , WL/ DOUHDG \ UDWHG

83'\$7(UDMQJ6(7UDMQJ #UDMQJ

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### 8 VHU3 URILDH

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	Username	
Email:	username@username.com	
First Name:	Name	
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,QSXW # XVHUBLG

3 URFHVV : KHQ WAH 8 VHU3 URILDI VFUHHQ IV RSHQHG SUHMRXVO FXUHQASKRWR RI XVHUDQG IQI RUP DWARQV UHDWHG VRI XVHUDUH QLVSODI HG 8 VHUV FDQ FKDQI H DQG HQ.VWAHLUIQI RUP DWARQV IQFOXQHV SDVVZ RUG DQG XVHUSKRWR

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8 SGDM 8 VHU

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Edito Three threat defecto caught Luke S	rs Choice of the decades after the Emp arises in the militant Fi or Finn and spare parts up in the Resistance's kywalker.	Week: Star War bire's defeat, a new rst Order. Stormtroo s scavenger Rey are s search for the miss	s: The Last Je Directed by J.J. Abrams Written by Lawrence Kas Michael Arndt	e <b>di</b> y dan, J.J. Abrams, , George Lucas
		Mark As Watched	★ 9.5 Rate	☆ 2015
Upcor	ning Episodes			
	Today, 3:00 Mr. Robot S03E07 eps3.6_fredrick+tanya.chk Mr. Robot wants answers; the Angela hits the rewind button.	AM on <b>USA Network</b> S FBI closes in;	T Vikings S05E01 The Departed Season premiere	oday,  2:00 AM on <b>History</b>
Show All				
D Gro Re Vie	nnis commented on Star Wars: The eat movie!!! Great cast!!! ply ⓒ 3 ⓒ 0 쓸 0 ⓒ 0 ♀ 0 ew All 5 Replies ❤	Last Jedi		
K Re	Ily gave Mr. Robot Season 1 a rating ply   ❹ 3  ◯ 0  ⊖ 0  � 0  ♀ 0            ● 0	of 9.7.		
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, QSXW # XVHUBLG # UDWH # UHDFWLRQBWSH # ZDWFKBLG # FRP P HQWBLG # ERG, 3 URFHVV : KHQ WAH + RP HSDJ H VFUHHQLV RSHQHG SUHMEXVO XVHUFDQ VHH P RMH DQG VKRZ VXJJ HWMRQV E\ WAH HQLWRUV DV 3& KRIEH RI WAH: HHN 8 VHUFDQ VHH FUHZ FUHQWV XVHUUDWH QDWH RI UHOPDVH RI WAUV VXJJ HWMG P RMH RUVKRZ \$ O'R XVHUFDQ VHH Z KHWAHUVKH ZDWFKHG RU UDWHG P RMH RUVKRZ ) XUWAHUP RUH KRP HSDJ H VFUHHQLQI RUP HG XVHUDERXVIXSFRP LQJ HSL/RGHV %HMGHV XVHUFDQ ZUWH DQG HQWFRP P HQW RQ P RMH VKRZ RUHSL/RGHV 8 VHUFDQ VHH UHSO DQG OLAH FRP P HQW E\ RWAHUXVHUV 0 RUHRYHU XVHUFDQ VHDUFK P RMH VKRZ XVHU RUDUMWE\ XVQJ VHDUFK VOE 8 SFRP LQJ ( SLVRGHV

6(/(&7 HSU/RGH) 520 HSU/RGH

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  - HSL/RGH HSL/RGHBIG VFKHGX09GBHSL/RGH HSL/RGHBIG
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6 KRZ & RP P HQW

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(SL/RGH: DWFKHV 6(/(&7ZDWRK HSL/RGH)520ZDWRK ,11(5-2,1 HSL/RGHBZDWRK21 Z DVRK Z DVRKBLG HSLVRGHBZ DVRK Z DVRKBLG ,11(5-2,1 HSL/RGH21 HSL/RGH HSL/RG-BLG HSL/RG-BZ DWAK HSL/RG-BLG ,11(5-2,1 SXEOFBXVHU21 ZDWFK XVHUBIG SXEOFBXVHUXVHUBIG : +(5)(ZDWRKXVHUBLG,1)6(/(&7 VHFRQGBXVHUBLG)520 IUHCGVKLS: +(5(ILLYMBXVHUBLG # XVHUBLG\$1' IUHQGVKISBWDWAV \$\$33529('¶ 6 HDVRQ: DWFKHV 6(/(&7ZDWRK HSL/RGH)520ZDWRK ,11(5-2,1 VHDVRQBZDWRK21 Z DWAYK Z DWAYKBLG VHDVRQBZ DWAYK Z DWAYKBLG ,11(5-2,1 VHDVRQ21 VHDVRQHSL/RG-BLG VHDVRQBZDWFKHSL/RG-BLG ,11(5-2,1 SXEOFBXVHU21 ZDWFK XVHUBLG SXEOFBXVHUXVHUBLG : +(5)(ZDWRKXVHUBLG,1)6(/(&7 VHFRQGBXVHUBLG)520 IUHQGVKLS: +(5(ILLYMBXVHUBLG # XVHUBLG\$1' IUHQG/KISB/VD/X/ \$33529(' ¶

6 KRZ : DMFKHV 6(/(&7ZDWRK HSL/RGH)520ZDWRK ,11(5-2,1 VKRZ BZ DWFK 21 Z DWAYK Z DWAYKBLG VKRZ BZ DWAYK Z DWAYKBLG ,11(5-2,1 VKRZ 21 VKRZ VKRZ BLG VKRZ BZ DWFK VKRZ BLG ,11(5-2,1 SXEOFBXVHU21 ZDWFK XVHUBLG SXEOFBXVHUXVHUBLG : +(5)(ZDWRKXVHUBLG,1)6(/(&7 VHFRQCBXVHUBLG)520 IULHQQVKLS: +(5( ILLYMBXVHUBLG # XVHUBLG\$1' IUHQGVKISBWDWAV \$\$33529('¶ 0 RYLH: DWFKHV 6(/(&7ZDWFK HSL/RGH)520 FRPPHQW ,11(5-2,1 PRYLHBZDWRK21 Z DVARK Z DVARKBIG P RYLHBZ DVARK Z DVARKBIG ,11(5-2,1 PRMH21 PRYLHPRYLHBLG PRYLHBZDWRK VKRZBLG : +(5(ZDWRKXVHUBLG,1

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& UHDMAI: DMATK 5 HDFMIRQ # XXLG 8 QITXH LG J HQHUDMAG E\ EDFNHQG VFULSW

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,16(57,172 ZDWRKBUHDFWIRQ ZDWRKBLG UHDFWIRQBLG 9\$/8(6 # ZDWRKBLG # XXLG

& UHDMM & RP P HQW5 HDF MRQ # XXLG 8 QLT XH LG J HQHUDMAG E\ EDFNHQG VFULSW

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,16(57,172 FRPPHQWFRPPHQABUGERG, XVHUBLG 9\$/8(6 # XXLG # ERG, # XVHUBLG ,16(57,172 ZDWRKBFRPPHQWZDWRKBLGFRPPHQWBLG9\$/8(6 # ZDWRKBLG # XXLG

& UHDMM & RP P HQW5 HSO # XXLG 8 QLTXH LG J HQHUDMMG E\ EDFNHQG VFULSW

,16(57,172 FRPPHQWFRPPHQWBIGERG, XMHUBIGSDUHQUBIG 9\$/8(6 # XXIG # ERG, # XMHUBIG # FRPPHQUBIG

### 0 HAXP



,QSXW # PHOLXP BLG

3 URFHVV : KHQ WAH O HQXP VFUHHQ LV RSHQHG LWQLVSODA V DOOMAH DYDLODEODI HSLVRGHV RI WALV FKDQQHO 8 VHUFDQ VHH EURDGFDWQDMAV RI WAH VKRZ V Z LWA WAHLUSORVWXP P DU \$ O/R XVHUFDQ EH J XLQHG WA OLON LQ RUCHUWA Z DWAK RQOOH WALV FKDQQHO

64/6WDMHPHQW

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6(/(&7HSL/RGHBQDPHHSL/RGHBLQIRWDDDDUBXLOOGDWH)520HSL/RGH 1\$785\$/-2,1 6(/(&7HSL/RGHBLG'\$7(W2PHD/CDWH)520VFKHGXOPGBHSL/RGH :+(5(PHGLXPBLG #PHGLXPBLG\*5283%< CDWH

### & DOPLOGDU9 IHZ



,QSXW # QDP H # GDVM # RUGHUE\

3 URFHVV : KHQ WAH & DOHQODU9 LHZ VFUHHQ LV RSHQHG LWOLVSODA V EURDGFDWODWHV RI W VKRZ V DQG P RYLHV 8 VHUFDQ VRUWKRZ V DQG P RYLHV E\ WAHLUEURDGFDWODWHV %HMQHV XVHU FDQ ILQMUVKRZ V DQG P RYLHV E\ WAHLUCOP HV IRUGHVOLDG VHOUFK

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3 URFHVV

% FOENQJ SHQIFRQV QHDUWKH IQIRUP DWRQ DGP IQFDQP DNH WHP HEWDEON \$IVMUP DNQJ WHP HEWDEON DGP IQFDQFKDQJH WHHUYDOXHV, QRUCHUWR GHOMM WHVKRZ RUHSIVRGH DGP IQ FDQSUHVV WH' HOMM EXWIRQ & OFNQJ WHSOXV EXWIRQRSHQVXS WHVHDVRQFUHDWRQP REDO % ILLODQJ WKDWP REDODGP IQFDQDGG QHZ VHDVRQV WRVKRZ % FOENQJ UHG UHP RYH IFRQV IQMGH WHVVHDVRQFDUGV DGP IQFDQUHP RYH VHDVRQV IURP VKRZ 6 IP LODUO DGP IQFDQDGG RU UHP RYH DUNIWW WRFDWRI VKRZ

, QSXW # PHQXP BLG # WPH # HSL/RGHBLG 3 URFHVV 7 R VFKHGXODI HSL/RGH RQ PHQXP DOP LQ VKRXOG VHODF VPHQXP DQG HSL/RGH Z LMK DYDLODEODI WPHVORW 6 R V WMP VKRXOG FKHFN DO0/FKHGXODIG HSL/RGHV E\ WKHLUWPH DQG J HW HPSW VORWV \$ V Z HOODV DOGQU GHZ HSL/RGH WRFKDQQHO DOP LQ L/ DEODI WRGHOMM RFFXSLHG HSL/RGH I URPFKDQQHOP HQXP

### \$ GG' HOMM 6 FKHGXONG (SL/RGH

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8 SGDMHHSLVRGHV

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,QSXW # PRYLHBLG ELQCHGVR (I TEXWRQ ! IRU' HONN # PRYLEBIG # PRYLEBOOPH # PRYLEBOENFUISWARQ # JHOUH # LP CEBUDWQJ # WIDLIGHUBXLO # UHOPDVHBQDVH ! IRUO RQL

### 0 RGIL\ ' HOHMAN RYLH

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6 FKHGXOH HSLVRGH RQ P HGLXP

\$1'W2PH ! # W2PH

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) HMFK XQVFKHGX0HG HSL/RGHV RQ P HGLXP

'(/(7()520 VFKHGXOHGBHSL/RGH ZKHUHHSL/RGHBIG # HSL/RGHBIG DOP LQ P D. FDQFHO/FKHGXOH

'HOHM VEKHGXONG HSLVRGHIURP PHGLXP

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3 URFHVV \$ GP LQ FDQ GHOMM WALLP HOLXP IURP WALL GDWDEDVH E\ FOUFNQJ WALL JI ¶EXWARQ RQ WAL FDWIP HP EHUSDJH \$ O'R KH FDQ P ROLL WALLDWWWEXWAV RI LW

,QSXW # PHGLXPBLG ! IRU'HOHMM # PHGLXPBLG # PHGLXPBQDPH # PHGLXPBLQIR # LPDJHBXU0V ! IRU0RGLI\

0 RGL\' HOMM 0 HGLXP

83'\$7(FDW) 6(7FDWB/QDPH #FDWB/QDPH FDWB/LPDJHBX/LO #FDWB/LPDJHBX/LO FDWB/LQIR #FDWB/LQIR FDWB/ELLIMK/GD\ #FDWB/ELLIMK/GD\ :+(5(FDWB/LG #FDWB/LG

64/6W2WMPHQWV '(/(7()520FDWW/+(5(FDWB&LG #FDWB&LG

3 URFHVV \$ GP LQ FDQ GHOMM WAH FDWIP HP EHUI URP WAH GDWDEDVH E\ FODFNLQJ WAH JJ ¶EXWAAQ RQ WAH FDWIP HP EHUSDJH \$ OVR KH FDQ P RGLI\ WAH DWWDEXWAV RI LW

8 SGDMM

,QSXW # FDWBLG ! IRU' HOHM # FDWBLG # FDWBQDP H # FDWBLP DJ H # FDWBLQIR # FDWBELUMKGD\ ! IRU

0 RGL\' HOHH&DW

UHOD MHBGDWH # UHOD MHBGDWH : +(5(PRYLHBIG # PRYLHBIG

# \$ GYDQFHG' DVD/EDVH & RP SRQHQW

### 9HZV

3 XEOF 8 VHU

&5(\$7(9,(: SXEOUFBXVHU\$6 6(/(&7XVHUBLGXVHUBCODPHDJHDYDWOUBLPDJHBLGXVHUBLUWOODPH 8VHUBODWOODPH)520XVHU: +(5(XVHUBWSH ! |\$GPLOT[

### 6 VRUHG 3 URFHGXUHV

) X]]\ 6HDUFK

, WDOORZ V VR VHDUFK I RUDQ DUELVUDU VWUQI LWUHAXUQV P RVWUP LODUP RYLH ODP HV VY VKRZ ODP HV XVHUODP HV HVF VRUMG E\ VKHLUMP LODUW YDOXH 7 KLV MP LODUW FDQ EH FDOFXODMG Z LVK OPMHQVKVMQ QLVVIIOFH

### 5 HSRUW

0 RVW/DMFKHG6KRZV

- 6(/(&7 VKRZ BQDP H & 2817 DV Z DWFKBFRXQV) 520 VKRZ
  - ,11(5-2,1 VKRZBZDWRK21

VKRZ VKRZ BLG VKRZ BZ DWAK VKRZ BLG

- \* 5283 % < VKRZ BQDP H
- 25' (5 % ∠ZDWARKBFRXQW (6&

#### 0 RVW\$ FW2YH 0 HGLXP V

6 (/ (& 7 PHOLXPBODPH & 2817 DVVFKHGXOHOBHSU/ROHBFRXQ/V)520 PHOLXP

,11(5-2,1 VFKHGX0H0BHSLVRGH21

VFKHGXOHOBHSLVRGH PHGXPBLG PHGXPPHGXPBLG

- \* 5283 % < P HQXP BQDP H
- 25'(5 % VFKHGX0HGBHSLVRGHBFRXQW) (6&

#### 0 RVW\$ FW2YH 8 VHUV

6(/(&7 XVHUQDPH & 2817 DVZDWFKBFRXQW) 520 XVHU

,11(5-2,1ZDWARK21ZDWARKXVHUBLG XVHUXVHUBLG

\*5283 % < XVHQQDPH

25' (5 % ZDWFKBFRXQW (6&

### 7WJHU/

- " : KHQDFRPPHQVRUUHDFVLRQPDGHVRDXVHU[VDFVLVVVVVVVPFUHDVHVDQHZ QRVLUFDVLRQVKDVEHBQJVVRDXVHUZLVKUHDVHGVH[VDQG0QNDVVULEXVHV
- " : KHQDVKRZ LVGHOMMGVVWMPZLOOGHOMMDO0VXEVFUSVBRQVVRVKDVWKRZ
- ": KHQ DQ HSL/RCH L/ CHOMMG V/ WMP Z LOOCHOMM DOO6 FKHGXORC( SL/RCH/ UHDMMG VR WDWHSL/RCH

### & RQMUDIQW

- " 8 VHU/ DQG DQP LQV P XWEH DXWAHQUAFDWAG EHIRUH XVLQJ WAH 7 UDFNE\ P H
- " 8 VHUM[VHQMLMH LQI RUP DMIRQ DQG FUHGHQMIDDY P XWEH HQFU) SVMG EHI RUH WRUHG LQ RXU GDMDEDMH
- " 8 VHU/P XWUHDG DQG DFFHSWINH SULYDF\ GDWD SROF\ DJUHHP HQW EHIRUH XMQJ WH DSSOFDWIRQ
- " 2 QO DOP LQV FDQ P ROLL GHOMM P RYLHV 79 VHULHV FRP P HQW 1 RUP DOXVHUV FDQQRW EH DEON WR OR DQ, NQG RI XQDXWRULI HG DFWRQV
- " : KHQ DQ, NQG RI P RYLH HSL/RCH P HQXP RU79 VHULH/ GHOMMG IURP WAH GDWDED/H WAH DQUH/SHFWAH UHDWARQ/ Z LODEH GHOMMG VLP XODQHRX/VO ) RULQ/WDQFH LL DQP LQ GHOMM 3& DU/ ´P RYLH FRP P HQW UDWQJ YDOXH GL/FX/VIRQ/ DERX/V8& DU/ ´Z LODDO/R EH GHOMMG
- " 8 VHUFDQQRWP DUN P RYLHV HSLVRGHV DV Z DVRKHG EH RUH WAHLUDLUGDVM
- " 8 VHUFDQQRWILYH P XOMSOFI UDMQI V WYRCH VKRZ KH FDQ RQO FKDQI H WYH SUHMRXV UDMQI
- " 8 VHUFDQQRWP DNH XQQP LUNG FRP P HQW WXDWFDXVH VSDP P LQJ

# , PSOIPHQUDWIRQ 3 ODQ

: HKDYH GHFLGHG WRXVH I ROBZ LQJ WHFKOROBJLEN/I RUWKH UHVSHFWYH SDUW RI WKH DSSOLFDWRQ

) URQMAQG 5 HDFWWM

% DENHOG 0 LEUR VHUYLEHV I RUHDEK RI VIKH RSHUDVURQV 7 KHMH VHUYLEHV EDQ EH LP SOHP HOUNG Z LUKI GLIHUHQVISURJUDP P LQJ ODQJ XDJ HV I UDP HZ RUVV 1 RCH IVI \* R 3 \ VKRQ 6 SULQJ

6 VRUDJH 3 RWJ/UH64 /