



PIXELES

Classes for BCA, MCA (IGNOU)

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Solved Assignment Year, 2012 Cs -63(UNIX)

Question1.

Consider the following set of process that arrives in the ready queue at the same time:

Process	CPU time
P1	2
P2	5
P3	2
P4	1
P5	4

Consider the following scheduling algorithm;

First Come First Serve (FCFS), shortest job first (SJF) and Robin round (quantum=1)

- What is the turnaround time of each process for each of the above scheduling algorithms?
- What is the waiting time for each process for each of the above scheduling algorithm?

Ans:-

First Come First Serve (FCFS): According to FCFS, suppose it comes as: - p1>>p2>>p3>>p4>>p5

P1	P2	P3	P4	P5
0	2	7	9	10
				14

Here process P1 submit at 0ns and it takes 2ns for execution thereafter it reached at p3 in 7ns and so on

Process	Processing time	Turn around time	Waiting time
P1	2	2	0
P2	5	7	2
P3	2	9	7
P4	1	10	9
P5	4	14	10

Average turnaround time = $(2+7+9+10+14)/5 = 8.4\text{ns}$

Average waiting time is = $(0+2+7+9+10)/5 = 5.6\text{ns}$

SJF (Shortest Job First): - According to SJF, processes are arrived as

:- p4>>p1>>p3>>p5>>p2

Processes are comes under following order:-

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P4	P1	P3	P5	P2
0	1	3	5	9
14				
Process	Execution time	Turnaround time	Waiting time	
P4	1	1	0	
P1	2	3	1	
P3	2	5	3	
P5	4	9	5	
P2	5	14	9	

Average turnaround time = $(1+3+5+9+14)/5 = 6.4ns$

Average waiting time = $(0+1+3+5+9)/5 = 3.6 ns$

Robin Round: each process executes alternatively one by one with interval of 1. (Given)

P1	P2	P3	P4	P5	P1	P2	P3	P5	P2	P5	P2	P5	P2
0	1	2	3	4	5	6	7	8	9	10	11	12	13
14													
Process	Processing time	Turnaround time	Waiting time										
P1	2	16	4										
P2	5	14	9										
P3	2	8	6										
P4	1	4	3										
P5	4	13	9										

Average turnaround time = $(16+14+8+4+13)/5 = 11ns$

Average waiting time = $(4+9+6+3+9)/5 = 6.2ns$

Question 2.

Write a shell program to convert a decimal number to its hexadecimal equivalent.

Ans:-

```
clear
echo "enter your number"
read num
x= $num
echo " "> db .txt
i=0
while [ $num -ne 0 ]
do
rem=`expr $num % 16`
```



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```
if [ $rem -eq 10 ]
r= 'A'
elsif [ $rem -eq 11 ]
r= 'B'
elsif [ $rem -eq 12 ]
r= 'C'
elsif [ $rem -eq 13 ]
r= 'D'
elsif [ $rem -eq 14 ]
r= 'E'
elsif [ $rem -eq 15 ]
r= 'F'
else
r=$rem
fi
echo $r >> db.txt
num=`expr $num \16`
i=`expr $i + 1`
done

echo "hexa of $x is:"
j=`$i`
while [ $j != 0 ]
do
w=`cut -c $j db.txt`
j=`expr $j - 1`
echo -n $w
done
```

Question 3. Construct context free grammar for "While" and "Switch" statement of C Language.

Ans:

While loop of C language

$\langle \text{stmt} \rangle ::= \text{while } \langle \text{expr} \rangle \langle \text{stmt} \rangle \text{ end while}$

Start symbol $::= \langle \text{while} \rangle$

$\langle \text{expr} \rangle ::= \langle \text{var} \rangle \langle \text{op} \rangle \langle \text{var} \rangle$

$\langle \text{op} \rangle ::= < | > | ! = | < | > | > = | < =$

$\langle \text{var} \rangle ::= [a \dots b] \mid [A-Z] \mid [0-9]$

Switch statement of C-language

$\langle \text{Stmt} \rangle ::= \text{Switch } \langle \text{var} \rangle \text{ case } \langle \text{stmt} \rangle \text{ default } \langle \text{stmt} \rangle$

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Start::=switch

<var>::=[a.....b] | [A-Z] | [0-9]

Terminal ::=<switch><case><default>

Non terminal ::=< var> | <stmt>

Question 4.

Compare and contrast the important features of the WINDOW VISTA and UNBUNTU (Linux) operating system.

Ans:-

Ubuntu:

- Ubuntu installation is easier and faster. There are Free upgrades available every 6 months. It is an open source operating system, free to download and install. It is available in:- Ubuntu – Desktop/Laptop Edition and Ubuntu Server edition.
- Ubuntu has a great and unique option of “Live CD” installation on any other operating system. Just boot the computer with the Ubuntu CD and you can use Ubuntu without actually installing it on the computer.
- Very Slick clean look. The way its drop menu organized by categories rather than by vendor make life lot easier to find what you need.
- Ubuntu has upto 36 virtual desktops (called workspaces) each of which can be individually named by you according to the applications/documents you place in them. This helps you declutter your desktop and help you navigate better. It is a great multitasking tool.
- It is one of the safest operating systems around as no ports are open by default which is one of the main hacking breaches other operating systems suffer.
- Ubuntu is not only hack-proof, there are no recorded spyware infections. It is a very secure operating system. Its FireStarter firewall by default blocks all sites not listed safe by you.
- Ubuntu by default does not offer access to the root directories to be modified, unlike VISTA, making Ubuntu safer and more stable as an operating system.

Vista:



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- Product available in four versions(vista Home basic, Vista Home Premium, Vista Business and Vista Ultimate) each with its own specific features which can be confusing for a first time user.
- Vista takes longer to install with many updates required before installation is completed. There are paid upgrades from one version to another. Each version has own specific features which can be confusing for a beginner.
- Vista appearance is as good as Ubuntu and it has quite few widgets for the desktop like the weather widget, sticky-notes, and a clock. We were not so happy with how software are categorized though as it made it a bit harder to find.
- Shares require password protection to be enabled (not enabled by default), a great hole most newbie's fall in and make their data available to every one not just hackers. When a data share is setup then your laptop/PC is hooked up directly to the internet without enabling the password protection (b/c you don't know or forgot to) your data will be open to the whole world. A small scan on your ISP Range will show you how many of these Vista users are there with the shares open to the public enjoy the surf :). Some shares are enabled by default!!!
- Vista suffers more security loopholes and hacking breach than Ubuntu, running out of the box. Comes with Windows Defender for internet security (almost useless). A third party security program is essential.

5).write a shell program to find the sum of the alternate digits in a given 5 digit number. Also, draw a flow chart for the program.

Ans:- #To print alternate digits in a 5-digits number

```
clear
echo "enter the number of 5 digit only"
read no
if test $no -ge 10000 -a $no -le 99999
then
i=1
while [ $i -le 5 ]
do
rem ='echo $no | cut -c $i'
echo -n $rem
i='expr $i +2'
done
else
```



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echo error.. number is not a 5 digit number

fi

6). Discuss the advantages and disadvantages of using stream oriented approach in UNIX system rather than record-oriented approach.

Ans:-

Stream- Oriented Approach:-

- It's more efficient to use the stream-oriented devices since buffering is not required, and also the efficiency problems that can be created by the buffering devices such as fragmentation, and the conflict with the operating system file system buffering mechanism can be eliminated with such devices.
- Continuous Representation Media:- The temporal relationship between data items is important to the meaning of the data. Examples include video and audio data
- Discrete Representation Media:- Not time dependent still images, text, executables
- Data Streams handle Continuous Media: Characteristics of the Input Service Required, Maximum data unit size Loss sensitivity, Token bucket rate Loss interval, Token bucket size Burst loss sensitivity, and Maximum transmission rate Minimum delay noticed.

Record oriented

- Fixed or variable length
- Read or write a number of records
- It required buffering and fragmentation.
- Maximum Delay Noticed.
- Indexing is required for Fast Access.

7). Write the UNIX commands for the following tasks:

(a). To print location of first difference after comparing 2 files.

Ans: Diff file1 file2

(b). To search files for lines that match a particular string pattern given.

Ans : grep "hello" *

(c). to search for a given pattern in a file and display its count.

Ans : grep -c "hello" file1

(d).To append the contents of file1, file2 to file3.

Ans : Cat file1 file2 > file3

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