Decision Control Structures

Decision Control Structures

- Control instructions changes the sequence of execution of program.
- Statement : Any instruction ended with semicolon.
- Expression: which gives certain o/p
- Condition: expression which evaluates to either true or false or a variable with true or false value;
- Decision making and branching
  - if
  - if ….. else
  - switch case

if & if else

- Syntax of if

```
if(condition)
{
  Statements;
}
```

  - A semicolon after if or else terminates the statement so its error
  - No need of braces for single statement.

Syntax of if else

```
if(condition)
{
        Statements;
}
else
{
        Statements;
}
```

else if ladder(Nested if else)

Syntax

```
if(condition1)
    {
     Statements;
    }
    else if(condition 2)
      {
     Statements;
      }
     else if(condition 3)
     {
     Statements;
     }
```

- Here care should be taken for exactly matching parenthesis of if and else.
- Any mistake in parentheses created misplaced else problem

switch- case

- Alternative to else if ladder
- Used to select one of several paths
- Syntax

```
switch( integral expression)
{
case  constant1:
      Statements;
      break;
case  constant1:
      Statements;
      break;
default:
      Statements;
}
```

switch- case

- Integral expression must yield integer value.
- It could be int const or expr which result to int const.
- We can use int or char expression. Like 2+3 or ‘a’+’b’
- case label must be int const or char const or const expr.
- default is executed when no match found.
- default is optional.
- If match found all cases below this case gets executed. Use break to stop this.
- For multiple statements use { }

switch- case

- continue can not be used in switch.
- Generally used for menu selection.
- No two cases can have same label.
- Only one default is allowed.
- Can execute common set of statements.
  - Ex. case ‘a’:

    case ‘A’:

    Statements;

    break;
- switch can only test equality.
- float is not allowed in switch or as case label.

switch- case

- char constants are converted to int when used in case.
- We can use expression with variables in switch but not as case label.
  - Ex. switch(i*j+k) =>valid
  - case (3+7) => valid
  - case (a+b) => Invalid
  - case (i<20) => Invalid
  - The last two are the limitations of switch
  - Discuss Flochart

exit( )

- exit() is library function.
- It terminates program execution.
- exit(0); =>graceful exit.
- exit(1); =>erroneous exit.

Unconditional Statements

- goto:
  - It transfers control from one statement to other statement.
  - Use of goto is not good programming practice.
  - Syntax: goto identifier.
  - Identifier is label given to statement where control is to be transferred.
  - Syntax of Identifier :
    - Identifier: program statement;
  - EX. To print no in reverse

```
int no= 321;
loop:   printf("%d",no%10);
        no=no/10;
        if(no !=0)
        goto loop;
```

Thank You

Control the flow of program!!!!

……Control structures.