

COMPUTER NOTES FOR 7TH CLASS (FOR ISLAMABAD)

UNIT # 4 (PROGRAMMING)

How is information stored on computer?

کمپیوٹر معلومات کیسے محفوظ کی جاتی ہیں؟

- All data stored on storage media as binary digits i.e. 1 (True) or 0 (False).
- These strings can make up photos, documents, audio and video.
- A byte is common unit of storage. 1 byte is equal to 8 bits.

- سٹوریج میڈیا پر ہائٹری ہندسوں کے طور پر محفوظ کردہ تمام ڈیٹا یعنی 1 (True) یا 0 (False).
- یہ تار تصاویر، دستاویزات، آڈیو اور ویڈیو بنا سکتے ہیں۔
- ہائٹ اسٹوریج کی عام اکائی ہے۔ 1 ہائٹ 8 ہٹس کے برابر ہے۔

Convert the following decimal numbers to binary numbers.

a) 13:

13/2	=	6 with remainder 1
6/2	=	3 with remainder 0
3/2	=	1 with remainder 0
1/2	=	0 with remainder 1

The decimal number of 13 in binary is $(1101)_2$

b) 17:

17/2	=	8 with remainder 1
8/2	=	4 with remainder 0
4/2	=	2 with remainder 0
2/2	=	1 with remainder 0
1/2	=	0 with remainder 1

The decimal number 17 in binary is $(10001)_2$

c) 21:

21/2	=	10 with remainder 1
10/2	=	5 with remainder 0
5/2	=	2 with remainder 1
2/2	=	1 with remainder 0
1/2	=	0 with remainder 1

The decimal number 21 in binary is $(10101)_2$

d) 31:

31/2	=	15 with remainder 1
15/2	=	7 with remainder 1
7/2	=	3 with remainder 1
3/2	=	1 with remainder 1
1/2	=	0 with remainder 1

The decimal number 31 in binary is $(11111)_2$

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Convert the following binary numbers to decimal numbers.

a) 1001:

$$\begin{aligned}(1001)_2 &= 1 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 1 \times 2^0 \\ &= 8 + 0 + 0 + 1 \\ &= 9\end{aligned}$$

b) 1100:

$$\begin{aligned}(1100)_2 &= 1 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 0 \times 2^0 \\ &= 8 + 4 + 0 + 0 \\ &= 12\end{aligned}$$

c) 1000:

$$\begin{aligned}(1000)_2 &= 1 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 0 \times 2^0 \\ &= 8 + 0 + 0 + 0 \\ &= 8\end{aligned}$$

d) 1010:

$$\begin{aligned}(1010)_2 &= 1 \times 2^3 + 0 \times 2^2 + 1 \times 2^1 + 0 \times 2^0 \\ &= 8 + 0 + 2 + 0 \\ &= 10\end{aligned}$$

What is the difference in visual outcomes of Move and Glide commands?

موداور گلائڈ کمانڈز کے بھری نتائج میں کیا فرق ہے؟

- Most move blocks work instantly, but the glide block will move a sprite through in between points. زیادہ تر حرکت کرنے والے بلاکس فوری طور پر کام کرتے ہیں، لیکن گلائڈ بلاک پوائنٹس کے درمیان ایک سپرائٹ کو منتقل کرے گا۔
- The tricky thing about the glide block is that it works over time, not at a specific speed. گلائڈ بلاک کے بارے میں مشکل بات یہ ہے کہ یہ وقت کے ساتھ ساتھ کام کرتا ہے، نہ کہ مخصوص رفتار سے۔

Differentiate Repeat and Forever control commands, Give one example of problem or each where they can be used.

Forever Block	Repeat Block
The instructions in this block keep on executing till the project is running or the stop button is pressed.	The instructions in this block execute for the given number of times..
It repeats statements forever. They never stop until you click stop button.	It is found in the "Control" category and can repeat statements as many times as you wish.

Write down the functions of the following commands if used with any sprite:

The glide 3 sec to "mouse-pointer" notice the sprite turns towards the mouse pointer regardless of its position.	The block "change y by -20" move the sprite in terms of mentioned steps in y-axis.

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What will the following two sets of codes do when Flag is processed? If possible, try running these sets of codes on a computer after your answer and compare.

When clicked the sprite move towards mouse pointer and after move the 5 steps just strike the boundary and wait for next direction of mouse-pointer.	In this case, Sprite just rotates in the direction of mouse pointer.

Which of the following can be used to start a set of codes? Tick which are appropriate.

Do from book

What is the difference between the following to commands from Motion Category?

Change y by 10	Set y to 10
It moves sprite in terms of mentioned steps in the y-axis.	It moves the sprite to the location of the mouse pointer or another sprite.
	Useful for keeping a set of sprites together.
	Moves sprite smoothly to a specified position over a specified length of time.
	One downside is that it pauses the script while the sprite is gliding.

Label the appropriate areas of the picture below using the given words: Stage, Sprite, Programming area, Block Palette, Flag, Sprite Properties

Do from book